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3 March 1962. Vol. 87. No. 2225

THE WEEKLY NEWSPAPER OF THE CHEMICAL INDUSTRY

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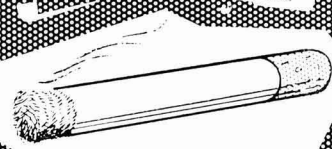
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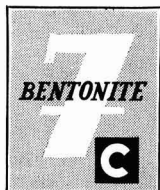
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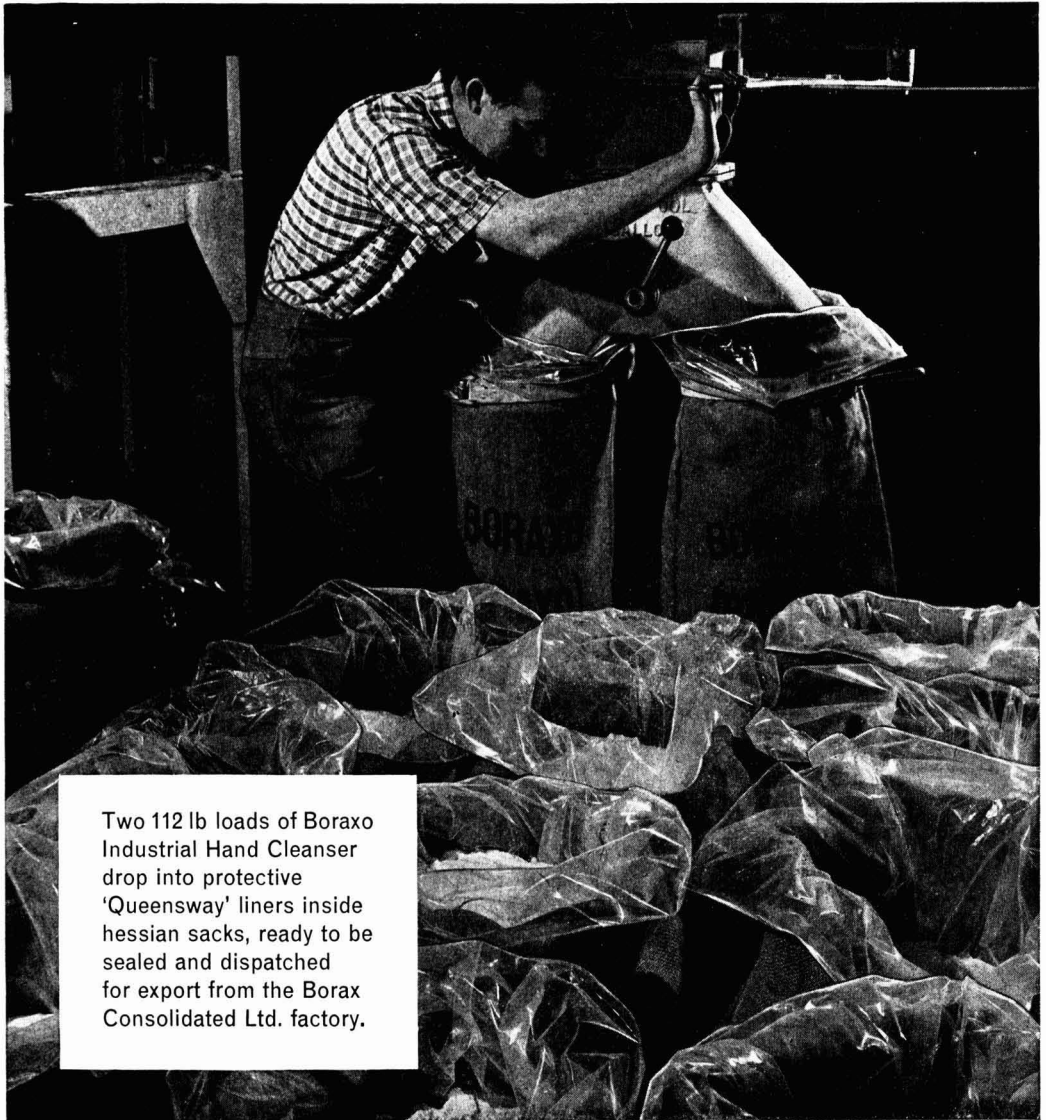
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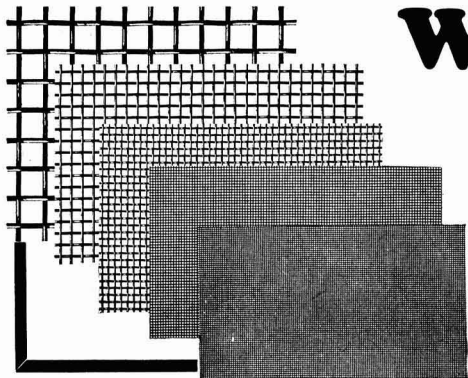
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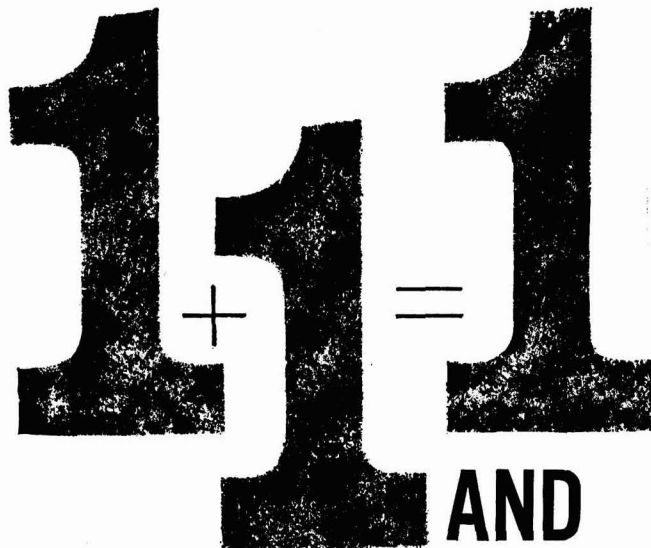
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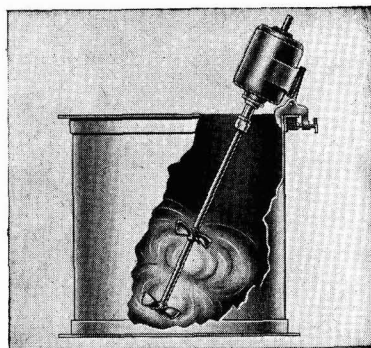
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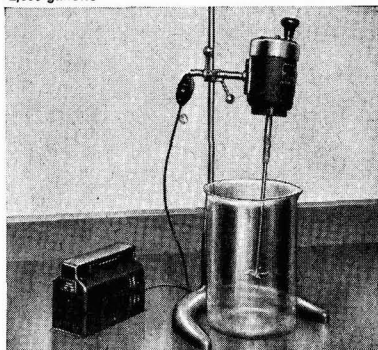
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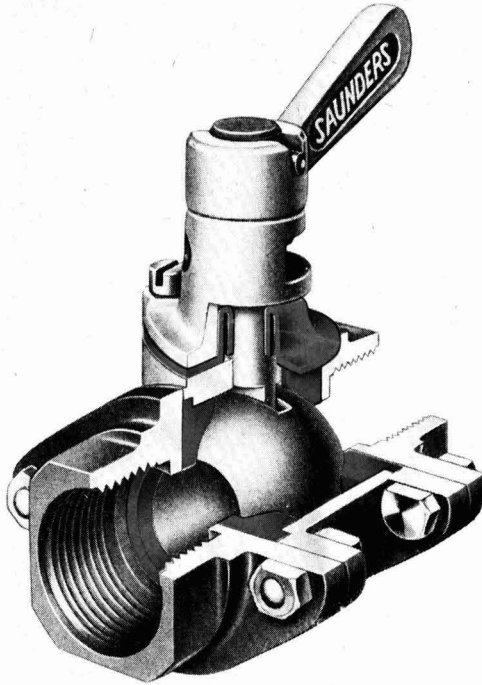
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(PAS)	Formaldehyde	Parathion
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Acetophenone	Fluoroacetic acid	Phenol phthalein
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thiopentone etc.	Histamine	Sulphanilamide
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Caffeine (and	Lignocaine	Sulphapyrazine
theobromine)	Levulinic acid	Sulphadiazine
Cetyl chloride	Metol	Salicylic acid
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Cyanacetic acid,	Methanol	diethylamide
ethyl cyanoacetate	Methylamines	Sorbitol
4- α -Chloropropionic	Methyl bromide	Sodium dodecylbenzene
acid (Dalapon)	Maleic hydrazide (MH)	sulphonate
Chloroquine	Maleic hydrazide (MH)	Strychnine
Diketene	Nitrofurans	Thioacetic acid
D.D.T.	Nicotinic acid	Tocopherol
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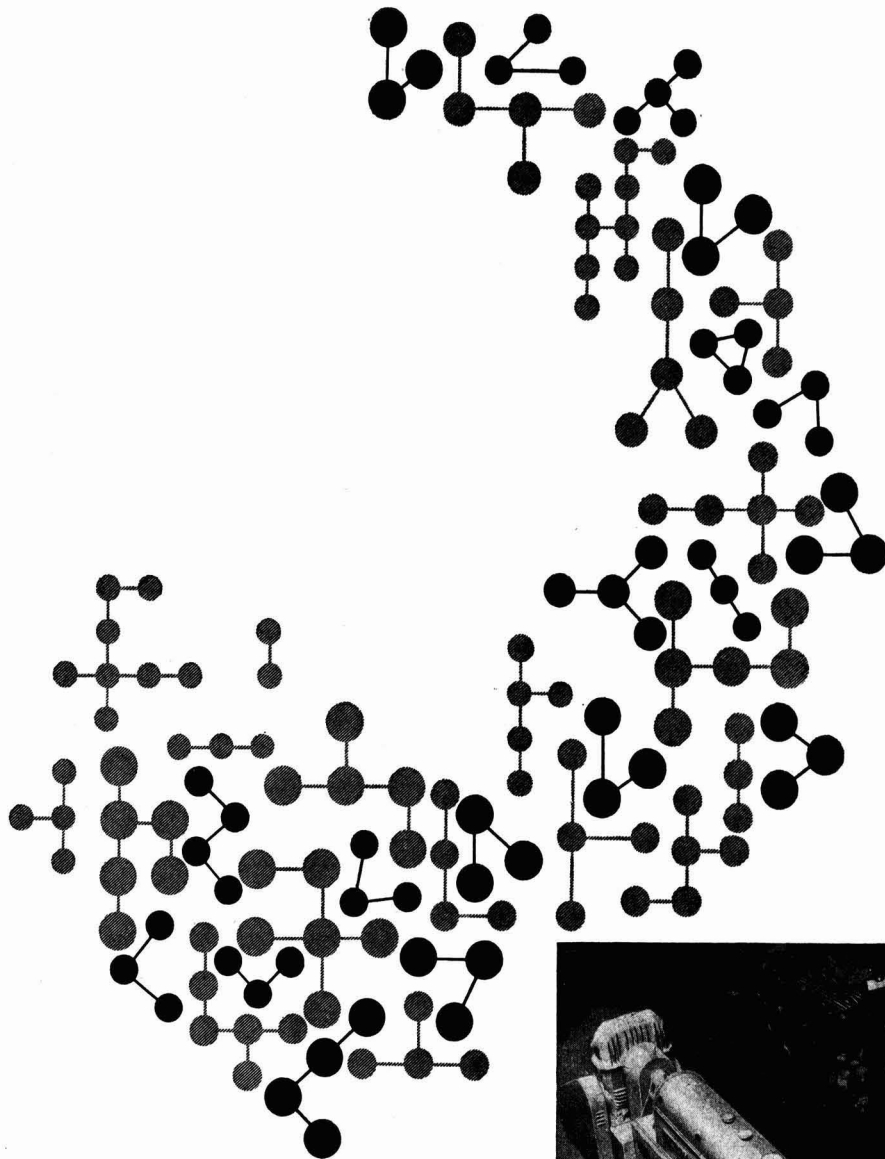
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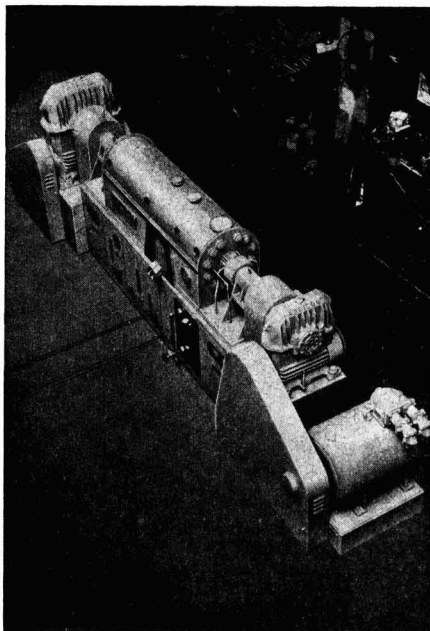
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BOUVERIE HOUSE · 154 FLEET STREET · LONDON · EC4**DANGERS OF PRICE PRESSURE**

RESULTS of chemical companies so far published for 1961 confirm that last year was bad for profits. The figures of both I.C.I. and Monsanto show that profits of those companies were badly hit and there is no doubt that a similar trend will be revealed when other companies issue their results.

It would be dangerous to read too much into them; they should not be interpreted as indicating that the days of chemical industry expansion are over. In his interview with CHEMICAL AGE, 17 February, p. 279), Mr. S. P. Chambers clearly showed that the disappearing advantages of Continental competitors, particularly in regard to wage costs, would help place the British industry in a stronger position than ever. Both Mr. Chambers and Sir Miles Thomas, Monsanto's chairman, have indicated that the latter part of 1962 should see a marked improvement.

It should also be realised that 1960 was quite an exceptional year for the British chemical industry; few companies expected to maintain their record performances throughout the worsening economic conditions in the U.K. during 1961 in face of the fiercer world competition brought about by over-capacity in some sections.

The chemical industry is very closely linked to the fortunes of industry in general and 1961 saw one of the periodical troughs with which the British economy is unfortunately plagued from time to time. It is hoped that the National Economic Development Council will, when it gets going, do much to help point the way to a smoother economy, less subject to alternate periods of boom and depression.

There is no doubt that in 1961 the most insidious attack on chemical profit margins came from price erosion, in turn brought about by intense international competition. This is a situation that may continue for a long time to come; but in the long term there is no doubt that mounting world demand will gradually enable chemical producers to return to conditions of working at full capacities and at optimum efficiencies.

In the meantime user industries would be well advised in their own interests as well as those of their customers not to try to depress price levels still further. These are in any event kept low by the influence of increasing competition. Any attempt to seek still lower prices would merely endanger the quality both of products and of technical service.

While this is the last thing the majority of British chemical producers would want to do, there can be little doubt that one or two firms would weaken if the pressure were to be kept up for too long. Maintenance of product quality and the high standard of technical service—two factors which have contributed greatly to the high regard in which British chemicals are held both at home and overseas—is of vital importance both to chemical producers and to the industries that use their products.

The cost of maintaining quality in products and services is high and can only be borne if selling prices are realistic.

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Dumping duty sought on U.S. and German styrene monomer

AN application for the imposition of an anti-dumping duty on styrene monomer has been put before the Board of Trade. The applicants are complaining particularly of dumping by U.S. and German manufacturers, but the application may be extended to imports from other countries which appear to be dumping.

Styrene is manufactured in the U.K. by Forth Chemicals (3/4 B.H.C. and 1/4 Monsanto) who have a 50,000 tons a year plant at Grangemouth, and Shell Chemical who have a capacity of 18,000 tons at Carrington. Plant under construction by Forth in Wales, which is expected to be in production by 1963, will raise the company's capacity to 100,000 tons a year.

Imports of styrene to the U.K. in the past two years indicate that price cutting has been taking place. In 1960, 2,770,262 gall. of styrene were imported to the total value of £1,123,330; in 1961 imports increased by about 150% to 4,017,941 gall. but the value was only relatively little more at £1,448,107.

Mounting over-capacity in the U.S.

There were indications in 1960 that U.S. companies were heading towards over-capacity, but the manufacturers, many of whom were engaged on or were planning extensions, and many of the market experts were optimistic over the prospects for styrene monomer demand. It appears that for a while their optimism was well founded. In 1960, potential capacity was about 2,000 million lb. and output about 1,700 million lb.—81% of capacity. However, in 1961 output slumped, being only 1,119 million lb. in the first eight months compared with 1,184 million lb. for the same period of 1960, and manufacturers expect the totals for the year to be no more than for 1960.

The situation is likely to be further aggravated by the completion of a plant the Marbon Division of Borg-Warner are planning, and which is expected to be on stream in 1963. Marbon will not only add to the already over-burdened market but will also in the process withdraw their substantial custom.

By late 1962, U.S. manufacturers (Cosden, Dow, El Paso, Foster Grant, Koppers, Monsanto, Shell, Sinclair-Koppers, Suntime and Union Carbide) should have 2,340 million capacity and when the Marbon plant comes on stream the potential will be 2,415 million lb.

The picture in Germany is less complicated. There are two producers of styrene—B.A.S.F. and Hüls. Hüls capacity in 1960 was reported to be 84,000 tons.

Little information is available on current prices for styrene; the price in Germany in August of last year was DM1.3/kg. and in current price in the

U.S. for 96% purity polymer grade styrene delivered in bulk was \$132/lb. U.K. price is stated to be about 11d per lb.

U.S. styrene is reported to be entering the U.K. at around 9d/lb.

I.C.I., Unilever results

Trading results of I.C.I. and the Unilever Group for 1961 are given in 'Commercial News', p. 370.

Lower prices for boric acid

REDUCTIONS in the prices of technical and pharmaceutical grades of boric acid, effective 26 February, have been made by Borax Consolidated Ltd., Borax House, Carlisle Place, London SW1. The reductions are £3 10s per ton for granular and £2 10s for crystal and powder. The following revised prices are for delivery in one ton lots or more (technical grade, net per ton).

	Paper bags		Hessian bags	
	£	s	£	s
Granular	74	0	75	0
Crystal	84	0	85	0
Powder	81	10	82	10
Powder, extra fine	83	10	84	10

Esso's new wages deal cuts overtime, boosts profits and pay packets

WIDESPREAD interest has been shown in the new wages structure now in operation at the Fawley refinery and chemical plants of the Esso Petroleum Co. Ltd. There has been a marked increase in wages, despite a working week cut to 40 hours and less overtime, accompanied by an increase in productivity. Esso, with the full co-operation of the unions, have overcome the problem of jobs demarcation. The scheme has not led to any redundancy.

It is stated that two years ago the 3,500 operatives and maintenance staff were working a 42-hour standard week plus eight hours overtime. Today most are working a 40-hour working week with an average of less than an hour's overtime a week. Thus another costly problem—the use of overtime to boost wages—has now been overcome.

The maintenance staff—some 10% smaller and working fewer hours—is now in fact handling a larger amount of equipment than was the case two years ago.

These improvements were made possible because the unions and the men agreed to relax many of the rigid lines of job demarcation, so increasing the men's versatility between one job and another. They also agreed to the elimination or modification of many expensive 'time allowances', including fixed tea breaks, washing time, changing time and shower time. Before the new agreement these 'time allowances' accounted for more than 30 minutes of each man's working day.

By July this year, basic rates of pay will have been raised by between 1s 10d and 2s 8½d an hour above the July, 1960, level. On average, the pay taken home at the end of the week will be an average £1 a week more than 1960, in spite of a cut of between eight and 10 hours in the working week. Thus, the 40-hour week has become a reality.

The concessions made by the unions are not only paying for the higher total payments to workers, up 7% over two

years, and the shorter working week, but have added to the profitability of the refinery. In the initial stages, Esso used an American firm of management consultants and before any approach was made to the unions, efforts were made over a period of 18 months to discuss the proposed changes with shop stewards and the workers. Repeated assurances were made that the changes would not lead to redundancy.

The unions which signed the agreement with Esso are: Amalgamated Engineering Union, Amalgamated Society of Woodworkers, Amalgamated Union of Building Trade Workers, Boilermakers' Society, Electrical Trades Union, National Society of Painters, Plumbing Trades Union and the Transport and General Workers' Union.

Unions consider I.C.I. pay offer

FOLLOWING a meeting between I.C.I. management and unions on Monday, the following statement was issued:

"Certain proposals were made by the company, which the unions are considering. And equally, the company is considering the trade union points of view expressed at the meeting".

The union's claim for a substantial wage increase for 50,000 I.C.I. workers was rejected last November, when the Chemical and Allied Industries Joint Industrial Council also rejected the claims made for 60,000 workers in other companies. The J.I.C., however, agreed in January to make an offer to the unions on 16 March and to back date this to 1 March.

It is expected that agreement on a rise for the 50,000 workers will be announced by I.C.I. in the near future. On Tuesday, the company discussed the pay claim of 12,000 craftsmen with the Amalgamated Engineering Union and the Electrical Trades Union. Both sides made proposals and it is believed that a further meeting will be held next week.

Project News

MURGATROYD'S COMPLETE £1.5 M. CHLORINE EXPANSION AT SANDBACH

THE £1.5 million expansion programme undertaken by **Murgatroyd's Salt and Chemical Co. Ltd.**, at Sandbach, Cheshire (see *CHEMICAL AGE*, 18 June 1960, p. 1007) is now completed. **W. J. Fraser and Co. Ltd** were responsible for the plant construction and installation by which the production capacity is raised 50%.

The basic process used at Sandbach is the electrolysis of brine in mercury cells. The new plant provides additional horizontal cells. Chlorine from the cells is passed to a new direct contact cooling tower which incorporates a closed cooling water circuit. After drying with sulphuric acid, the chlorine is compressed in two stages and liquefied by cooling with refrigerated brine. Caustic soda (50%) of rayon grade is obtained directly from the cells; this can be sold without further treatment or concentrated as required.

Murgatroyd, a jointly owned subsidiary of Distillers and Fisons, installed the first battery of mercury cells seven years ago, and since then the output of chlorine has trebled. The company operates nearly 50 vehicles of various types for the distribution of liquid chlorine under pressure.

Distillers' main interest in the provision of chlorine is for the manufacture of p.v.c. by **British Geon** at Barry, for which Murgatroyd's chlorine is largely used, via ethylene dichloride produced by **British Hydrocarbon Chemicals** at Grangemouth.

Armour may mine potash in Yorkshire

● FEASIBILITY studies are now in hand by **Armour and Co.** of the U.S., on the mining of potash in Yorkshire, where the company has acquired rights to sink a borehole. This was confirmed by Mr. W. Wood-Prince, chairman, at the recent annual meeting of stockholders.

Midsil Barry extension now on stream

● EXTENSIONS to P.3, the distillation plant of **Midland Silicones Ltd.**, at Barry, Glam., have recently come into production. Capacity for the distillation of methyl chlorosilanes will be more than doubled by the three new columns; another two columns will distil phenyl chlorosilanes at present produced only on a semi-works scale in the development department's pilot plant.



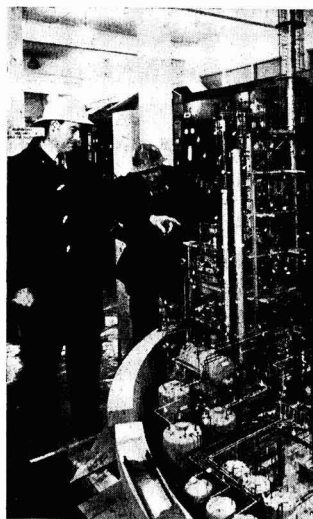
New mercury cell installations of Murgatroyd's

Engineering for the new equipment has been carried out by the central engineering department of **Albright and Wilson (Mfg.)** at Oldbury. The model illustrated was built at Oldbury from process design data supplied by **Midsil**. **Barry** production and engineering staff have also collaborated on the expansion project.

Capacity of the new silicone emulsions plant is more than four times as great as that of its predecessor. As stated in 'Project News', 23 December, 1961, page 993 **Sturtevant Engineering Co. Ltd.** hold a contract for the design and construction for tank farm additions and pipework at Barry.

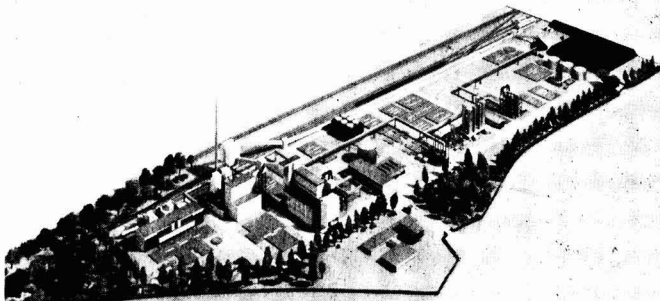
Local approval for ABS plans of Anchor/Marbon

● APPROVAL for erection of an ABS plant at the former airfield site at Bo'ness Road, Grangemouth, has been given to **Marbon Chemical Division** of **Borg Warner**, who are cooperating with **Anchor Chemical Co. Ltd.**, by the Dean of Guild. The site covers 40 acres giving scope for further development.



Dr. D. B. Whitehouse, plant manager, left, inspects the Midsil model with Mr. K. Rodwell, process operator

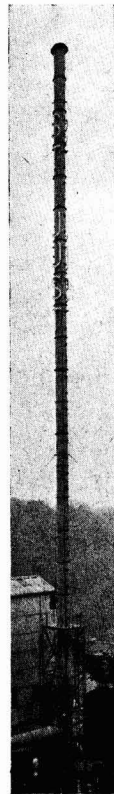
Model of Coleshill Lurgi gas plant



Model of the high pressure Lurgi gasification plant now under construction at the Coleshill, Warwicks., works of the West Midlands Gas Board. Main contractors are the **Woodall-Duckham Construction Co.**

Project News

Reinforced plastics solve fume dispersal problem at acid works



THE 180-ft.-high chimney shown in the accompanying illustration—believed to be the tallest chimney of its kind in the world—is a feature of the effluent disposal and ventilating duct system installed at the Whitefield, Lancs, chemical works of **Theodore St. Just**, jointly owned by Borax (Holdings) and F. W. Berk. Problems involved in designing this system included the following.

For efficiency, the stack had to be midway along the length of the works. Here, only a limited area was available for foundations; this in turn imposed a weight limit on the stack. To allow effluent from any source to be handled efficiently the stack had to have two inlet manifolds and, the gases being corrosive, caustic scrubbing facilities were needed to neutralise them in the stack base.

Constant changes in the type of chemicals being produced and in production methods called for an easily adaptable extraction and ventilation system, while the pipework had to be capable of withstanding greatly varying corrosion problems. Finally the ducting, for installation reasons, had to be of light weight and, being relatively inaccessible, to require no maintenance.

To deal with these problems, Graydons Industrial and Marine Plastics Ltd., of Beverley, Yorks, were called in to design and produce a comprehensive effluent handling scheme. It was decided that a stack height of 180 ft. above ground level, was called for and the weight problem was overcome by using glass reinforced plastics for the stack section. A concrete foundation 12 ft. square and 18 in. deep was laid as a base and from this a steel structure, 8 ft. square, was erected to a height of 36 ft. to house the extraction and ventilation inlet manifolds and also to provide an access platform to a gas sampling point.

Air from the ventilating system is drawn through a 15,000 cu. ft./min. extractor installed at ground level, and delivered by an external pipe to an injector system at a higher level in the stack base—by this method a depression of 2½ in. w.g. was induced in the lower portion of the stack where the inlet manifolds of the fume extraction system entered. Placing of the fan in the ventilating system removed the danger of corrosion of the metal fan blades and casing. The base of the stack below the ventilating system venturi was divided into two chambers by a 16 in. vertical baffle to provide caustic scrubbing facilities. Extensive use of glass reinforced plastics for ducting, pipework, and special fume collection hoods for the production vessels, overcomes corrosion problems.

Construction forges ahead on Du Pont's neoprene expansion in Northern Ireland

CONSTRUCTION to give a 20% increase in production capacity of the neoprene synthetic rubber plant operated by the **Du Pont Co. (U.K.) Ltd.** at Maydown, Northern Ireland, is well under way. According to Mr. Samuel W. McCune III, managing director, the additional facilities will require a peak construction force of approximately 130 people and will be completed by 1963.

Production of neoprene first began at Maydown in May 1960, the plant being designed to produce 50 million lb./year. At the official opening of the plant in July 1960 (C.A., 30 July, 1960, page 161) it was announced by Mr. W. H. McCoy, then managing director of Du Pont (U.K.), that plans for a 20% increase were in hand. Demand for neoprene has continued to grow in Europe and the plant expansion is designed to meet the

need for Du Pont's customers primarily in the U.K. and Western Europe.

A second plant at Maydown, to produce Hylene organic isocyanates, was announced by the company in June 1961. It is scheduled to be in operation late in 1963.

Wax distillate tower for Danish refinery

● ORDER for the fabrication and erection of a wax distillate vacuum flash tower, valued at some £22,000, has been received by **Uddeholm Ltd.**, London, from Kellogg International Corporation, also of London. The tower is for the new Gulf Oil refinery at Stignæs, Denmark, and is about 70 ft. high, 17 ft. in diameter and will be fabricated from stainless, clad and mild steel.

Equipment Contracts

More Lightnin mixers for Polymer Corporation

● AN additional order for eight large capacity mixers, valued at approximately £13,000 has been obtained by **Lightnin Mixers Ltd.**, Poynton, Ches., from the **Polymer Corporation**, from whom they have already secured a £75,000 contract for the supply of fluid mixing equipment.

The mixers are for a new synthetic rubber plant which Polymer are setting up at Strasbourg, the original plans for which have recently been extended. All the Lightnin Mixers equipment is due to be delivered during the spring of 1962.

Scientific apparatus for U.S.

● ORDER for 12 units of the B.T.L. semi-micro zone melting apparatus has been received by **Baird and Tatlock (London) Ltd.** from their agents in the U.S., the Torsion Balance Co., N.J.

LPG Gas Board tankage by G. A. Harvey

● IN the past 12 months **G. A. Harvey and Co. (London) Ltd.**, Greenwich, have manufactured more than 30 large butane storage tanks for use by U.K. Gas Boards in the enrichment of town gas. The largest installation—of 12 tankers—was at the East Greenwich works of the South Eastern Gas Board.

Recently four tanks were installed at Wandsworth, each with capacity to store 33,000 gall. of LPG at a working pressure of 100 p.s.i.

U.K. firm gets Polish asbestos contract

● A Polish contract for asbestos materials worth £75,000 has been gained by **Turner Brothers Asbestos Co. Ltd.**, Rochdale (a member of the Turner and Newall Group). The contract was gained against fierce competition, particularly from West Germany.

U.K. industrial ceramics for Soviet bloc

● CHROMATOGRAPHIC tanks and porcelain ball mills for export to the U.S.S.R. and large quantities of grinding balls for a new Rumanian ceramic factory are among recent orders for industrial ceramics received by **Doulton Industrial Porcelains Ltd.** Other products which have found their way to Eastern Europe are Doulton F.101 compressed air filters destined for the U.S.S.R., and porous ceramic diaphragm plates for Poland.

Doulton state that alumina porcelain is gaining increasing popularity for numerous industrial applications at home and abroad and, for some uses is replacing standard chemical stoneware. They report a substantial rise in orders for Roydalo B, the toughness and abrasion resistance of which is especially useful in rugged duty products such as wire rollers and the larger types of ball mill.

I.C.I. WILTON SITE TO BE TAKEN OVER BY H.O.C. DIVISION

Reorganisation also includes Severnside

THE I.C.I. Wilton works in Yorkshire, where £130 million has been spent since the site was acquired in 1945, is to be taken over by the Heavy Organic Chemicals Division. The Wilton Council's responsibility for Severnside will be taken over by Billingham Division since they have a much larger investment stake at this site than H.O.C. Division.

Actual hand-over of Wilton Council's responsibilities to H.O.C. Division will take place during the next six to 18 months. This decision was taken by the I.C.I. main board who have been considering the future top level pattern of organisation both at Wilton and Severnside. Wilton provides site facilities general services for the plants of five other I.C.I. divisions—Dyestuffs, Fibres, General Chemicals, H.O.C., and Plastics. These divisions will continue to be responsible for the operation of their own plants at Wilton, but the other divisions will in future look to H.O.C. Division for their services.

I.C.I. main board felt it would be an advantage to have at Wilton an organisation of the division type handling all aspects of a chemical concern's interests—selling, research and overseas functions.

Headquarters to move

Headquarters of H.O.C. Division will be moved in due course from Billingham to the south bank of the Tees and will be sited near the Wilton Works. Operations of the division and the site will be fully integrated, but as the two organisations are now largely complementary to each other and cover such different fields, such an integration is not likely to necessitate more than a few individual readjustments.

The change of top organisation at Severnside may take several months; it will not lead to any sudden changes in the staff arrangements at the site. The future of Severnside as a developing site for appropriate new plants of any division will continue.

Capital development at Wilton is continuing at a rate of around £10 million a year. Wilton employees total 4,400 (1,300 staff and 3,100 payroll), while H.O.C. Division have about 3,000 employees. Resident members of Wilton Council are: Mr. J. C. H. McEntee, chairman; Mr. R. E. Newell, managing director; Mr. J. Hughes, technical; Mr. N. Charlton, director and chief accountant; and Mr. J. Grange Moore, works and personnel. The council also includes the chairman of the divisions which have plants at Wilton.

The Heavy Organic Chemicals Division was set up in 1958. Its main products are: at Wilton, ethylene, propylene,

ethylene oxide and glycol, butadiene and para-xylene; at Billingham, synthetic phenol, carbonylation plants, plus plants for alkyl tar acids, isopropanol, acetone and alkylamines. Dr. S. W. Saunders is chairman of this division and Mr. K. W.

Palmer and Mr. T. B. Clark are joint managing directors.

Plastics Division. Important changes have also been made in the Tees-side plants of Plastics Division, from 1 March. The plants have been reorganised as two works—Polyolefins and Tees-side Plastics.

Polyolefins works comprises the present Wilton polythene works, plus polypropylene plants, including the polypropylene pioneer plant. Mr. A. Burness, now Tees-side plastics works manager, will be works manager.

Tees-side plastics works will comprise the existing plants less polypropylene. Mr. L. P. Bayly, now polythene works manager, will be manager.

Borax (Holdings) report turnover and profit increases in first months of 1961/2

AFTER a year in which group net profit was down 7.5%, Borax (Holdings) Ltd. report that in the early months of the current year to 30 September 1962, tonnage sales and profits were both up. In his annual report, Lord Clitheroe, chairman, says it will not be possible to predict with any accuracy the 12 months' results until later in the year. (For results, see 'Commercial News'.)

The recession in the U.S., which now seemed to be over, had affected results of the U.S. interests. Following recovery in the U.S. and Canada, demand for boron products in those markets was now strong. In Europe, the reverse was true; a high level of demand continued well into 1961, but the pace of expansion began to slacken in the spring, first in West Germany and France and later in the U.K., where boom conditions had existed for some time.

This slackening was a temporary phase in the progress of the chief industries which used boron products and should not be regarded as unhealthy. Sales in Australasia, the Far East and South America exceeded those of the previous year.

There would be increased competitive activity in Europe for the Common Market refining capacity already exceeded demand for some boron products. The group, however, was well placed to retain its position in Europe, because of modernisation and expansion of the French plant and ability to take advantage of a high level of production in California and a unique raw material position.

Boroquímica Ltd. incurred a loss, but towards the end of the year there was a discernible improvement in trading. Extension and modernisation of the refinery near Dunkirk were nearly completed and substantial deliveries to other C.M. countries had been made.

Sales of boron products by the Spanish company had been a record, but there had been a change in tartaric acid export markets. Oversupply had created a soft market throughout the world and as a result profit margins were cut and exports were down.

Credit restrictions adversely affected

sales in the U.K. in the latter part of the year. There was also some reduction in sales to U.K. detergent makers, important users of sodium perborate. Despite that, sales of boron products in the U.K. by Borax Consolidated Ltd. were a record. This was due to a very considerable increase in sales during the first six months. U.K. sales this year could not be expected to match last year's record, due to the April budget and the raising of the Bank Rate to 7%, plus the present policy of restrictions on credit and consumer spending.

First part of the expansion in boric acid capacity at Belvedere, Kent, was completed during the year and was now working satisfactorily.

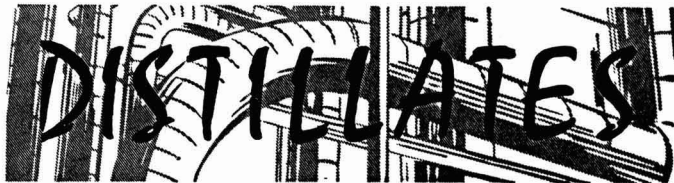
Although turnover of Hardman and Holden, acquired in December 1960 and at a record level, profits were down owing to rising costs and some cuts in selling prices made to meet rising competition. The management was seeking to develop a more profitable position through sustained efforts in research and the cutting of costs. Sales and profits of Spencer Chapman and Messel were well maintained. Theodore St. Just expanded their activities and further increased both sales and profits.

The group's research programme and plants in Canada are referred to in 'Distillates.'

In Parliament

No hazard to workers with Rhodine B

Asked in the Commons last week whether in view of the decision of the Brighton court that the use of Rhodine B as a colouring matter for confectionery might induce cancer, he would have that substance re-analysed to ascertain if chemical process workers handling it were likely to suffer from cancer, Mr. John Hare, Minister of Labour, said he was advised that there was no such danger to process workers.



★ **STOCKHOLDERS** who have stood by Borax (Holdings) Ltd. through the vicissitudes of recent years have had their faith amply justified. Not only has the group maintained its position despite difficult conditions—U.K. sales were a record last year and profits were down relatively little—but turnover and profits so far in the current year are higher than last year.

The group has plans for a new Canadian potash venture. Last August, United States Borax and Chemical, the U.S. operating subsidiary, agreed with Homestake Mining Co., San Francisco, to set up a joint venture to carry out feasibility studies on mining and processing potash ores near Saskatoon. If it is decided to start a Canadian operation, the two companies may then participate equally in any company formed. A decision on future action is likely to be taken this year.

Another indication of the group's progressive outlook is in the research field. The research programme includes the study of new processes for making boric acid; applications of borates in flame-proofing, timber preservation and corrosion inhibition; development of new organo-boron compounds as curing agents for plastics; and methods of making borides and fabricating them into components for industry. Significant progress has been made in California with a process for chlorate-based dry bleach.

★ **THE credit squeeze** of 1961 not only hit the chemical industry, but because of its effect on the motor car and durable consumer goods industries, it also cut demand for glass fibre. According to Sir Walter Worboys, chairman of BTR Industries Ltd., their subsidiary, Deeglas Fibres, had to operate their plant "at well below its designed capacity" throughout the year. Although Deeglas sales are now much better, the plant is still not working to capacity and since U.K. capacity is in excess of current demand, the company's aim is to encourage the wider use of reinforced plastics.

This situation has naturally affected the demand for polyester resins made by another BTR subsidiary, Artrite Resins. This company and Deeglas have now been merged to form the BTR Glass and Resins Division, a move that Sir Walter expects to give substantial administrative economies.

According to my sources, total tonnage of polyester resin sold in the U.K. is around 10,000 tons/year, 1,000 tons of which go to surface coating resins, jointing resins and encapsulating resins, the remaining 9,000 tons being used for

glass fibre. On the basis of an average ratio of 2.5 resin : 1 glass, this gives a figure for current U.K. consumption of glass fibre reinforcement of 3,600 tons. Apart from Deeglas, other U.K. producers are Fibreglass Ltd., the major producers, and Turner Brothers Asbestos. There is also some imported material coming into the U.K.—from the U.S. and the Netherlands. Main outlets for glass fibre are:

Flat and corrugated sheet	about 30%
Land transport	about 20%
Sea transport	15-16%
Aircraft and missiles	10%
Consumer goods	10%
Chemical plant	5%
Miscellaneous	9-10%

★ **JUST** as synthetic rubber consumption has been steadily increasing until it is ready to take the major share of the rubber market from the natural product, so man-made fibres, particularly synthetics, are continuing to take an ever bigger share of the textile fibre market from natural products.

According to the Food and Agricultural Organisation of U.N., world consumption of all textile fibres totalled 15.4 million tonnes in 1961. Cotton and wool still account for the major share—76% of the total. This is in fact a smaller share of a bigger market, for in 1958 cotton and wool accounted for 80% of the total fibre consumption.

Consumption of cotton in 1961 increased 9,000 tonnes, while the figure for wool was lower by 11,000 tonnes. The increase for man-made fibres was 265,000 tonnes. This picture is confirmed by statistics, issued by F.A.O., covering world per capita consumption:

	1958	1960	Increase %
	kg.	kg.	
Synthetic fibres	0.16	0.27	about 70%
Rayon	0.83	0.88	about 6%
Cotton	3.31	3.38	2.1%
Wool	0.46	0.47	2.2%

★ **DISAPPEARANCE** of familiar landmarks is often the occasion for nostalgic regrets. Few at I.C.I. Nobel Division's Ardeer site, however, will regret demolition of the old nitric acid and Gaillard sulphuric acid concentration plants, redundant since the commissioning of the new IOP plant in 1960, and the two magnesium nitrate nitric acid concentration units, one in 1958 and the other last year.

The old nitric acid and Gaillard units had the reputation of being difficult to run. The reason was that tar and soot quickly formed in the gas chambers, which meant a shut-down for one day almost every week for cleaning purposes.

Work on clearing the acid plants is

now at the halfway stage. When completed, Ardeer will have a site big enough to accommodate three football pitches. Also on their way out are the cast iron water pipes that have served Ardeer for more than 80 years. They are being replaced by 6 in. p.v.c. piping supplied by Yorkshire Imperial Metals. When the cast iron pipes were removed it was found that thick deposits had reduced the bore of some from 4 in. to something like an inch.

★ **SUPPORT** for the controversial findings of the Zuckerman Committee which forecast a balance in the supply and demand of scientists for industry by the middle of the present decade, comes from Management Selection Ltd., one of the largest of the companies engaged in the filling of managerial appointments in the U.K.

The Zuckerman report suggested that the long-term industrial shortage of scientific manpower was largely imaginary. M.S.L. advertisements in the last quarter of 1961, classified according to type of appointment, show a 52% fall for 'research, development and design,' a 6% decline for 'production,' a 2% rise for 'sales,' and rises of 14% for 'general management,' 19% for 'accounting' and 18% for 'others.'

Over the whole of 1961, the M.S.L. index shows the following numbers of appointments registered: 'research, development and design,' 4,947 (down 32%); 'production,' 4,339 (down 23%); 'sales,' 3,340 (down 16%); 'general management,' 978 (up 35%); 'accounting,' 2,014 (up 2%); 'others,' 2,749 (up 8%).

Without seeking to supply the answer, Management Selection ask 'Does this mean that demand has been temporarily satisfied, or have recruiting methods for scientific staff undergone a radical change? While inclined to agree with the Zuckerman report, I believe that a return to more profitable trading in British industry will see an increase in the number of advertisements appearing for 'research, development and design' staff.

★ **To have one of the principal guests** absent is a blow to any luncheon; to have the two principal guests away is a major calamity. But members and guests at the O.C.C.A. lunch on Monday faced up bravely to the enforced absence of Lord Hailsham, through indisposition, as well as of Lord Fleck, whose train was delayed by ice for an hour or more.

Mr. Denzil Freeth, Parliamentary Secretary for Science, made a very able last-minute 'understudy' for the Minister and nobody followed Mr. Freeth's humorous suggestion of "asking for their money back."

Alembic

I.C.I. bid for Courtaulds

STOCKHOLDERS' PLEDGES TO COURTAULDS REACH 44,000

THE number of postcards pledging support to Courtaulds in their struggle against the I.C.I. take-over bid had reached 44,000 (just under a quarter of the 180,000 stockholders) as CHEMICAL AGE went to press. It is not known how many Ordinary stockholders have replied, but when the total had reached 31,000, a sample check showed that 12% of the equity supported the board.

Courtaulds state it is evident that I.C.I. cannot hope to obtain the 90% acceptances of their offer for which they have asked. Courtaulds confirm that they will proceed with their plans to distribute the loan stock and to make cash distribution to their stockholders.

Notices convening the extraordinary meeting on 15 March to approve Courtaulds' counter proposals have been sent out to stockholders.

Meanwhile, Courtaulds' shares have not attained the market price expected, but have remained below both the value of the I.C.I. loan stock offer and the notional value that can be placed on the shares if the bid is unsuccessful.

Courtaulds' stockholders are urged by the board not to be unduly concerned about price movements on the Ordinary stock. These, say Courtaulds, may be said to have been due largely to technical market factors.

City sentiment favours success of I.C.I. bid

City sentiment—this week—favours success of the I.C.I. bid. Of 30 leading brokers polled by a national newspaper, 24 are recommending acceptance of I.C.I.'s offer; four "don't know" and two advise investors to stand by Courtaulds. Shareholders will have to make their decision by Wednesday next week.

Courtaulds promise policy changes. Sir Alan Wilson, chairman-designate of Courtaulds, promised sharp policy changes when answering questions put to him by members of the Society of Investment Analysts. Many questioners inquired about the reliability of the board's profit estimates. Mr. Knight, a senior member of Courtaulds' board present, revealed that the internal profit estimate made a year ago for the current year was £17.7 million, and the figure now looked liked being £17.5 million. Similar estimates over the past 10 years had differed only 2 to 3% from actual figures.

Discussions with U.S.S.R. A three-man technical mission from Courtaulds has left for the Soviet Union for discussions on a projected £7 million contract for a Triel plant in Latvia. Heading the Courtaulds team is Mr. T. Adams, director of Courtaulds Synthetic Fibres Division.

Courtaulds' fibre for carpets. An

improved synthetic fibre developed by Courtaulds for use in carpets was introduced on the opening day of the carpet fair being held currently in London. Called M61, the fibre is a viscose staple. Fibres of this family are being used by the carpet industry at the rate of some 50 million lb. a year. Courtaulds claim that M61 has greater resilience and longer wearing properties than fibres already in use.

I.C.I.'s statement for workers. Both I.C.I.'s document sent to Members of Parliament and the statement being sent to stockholders are being made available throughout the company to enable non-stockholders to have copies on request.

I.C.I. offer now unconditional irrespective of percentage of acceptances received

COURTAULDS were informed on Wednesday that I.C.I. had decided to declare their offer for Courtaulds ordinary stock unconditional irrespective of the percentage of acceptances received by 8 March. This means that subject to the passing of the resolution at I.C.I.'s meeting of shareholders on 16 March and to the grant of Stock Exchange quotations, every Courtaulds ordinary stockholder who sends in his acceptance by 8 March is certain of receiving an allotment of I.C.I. loan stock or shares.

This decision has been reached following the statement of Courtaulds that they would carry out their recent proposals at their meeting on 15 March, irrespective of the proportion of acceptances received by I.C.I. by that date, so long as the figure is less than 90%. I.C.I. directors regret this situation because in their view "very much could be gained by co-operation between the two companies".

I.C.I. directors have taken this step for the following reasons:

(a) They feel that Courtaulds' stockholders should be free of any uncertainty as to whether I.C.I. are prepared to accept their stock.

(b) They think it right that those stockholders wishing to sell their shares should be able to do so at a price commensurate with the value placed by the market on the I.C.I. securities offered in exchange.

Courtaulds have promised their co-operation in assuring speedy registration of all acceptances and transfers received by I.C.I. In these circumstances, I.C.I. wish to make it clear that they would not seek to prevent the passing of the resolution at the Courtaulds meeting and the issue of Courtaulds loan stock if the Courtaulds board adhered to its

Fire at Abrac pseudo-ionone plant

FIRE broke out on one of the chemical plants at the Stratford works of A. Boake Roberts and Co. Ltd. at 3.45 p.m., Monday, 26 February, but was extinguished within three-quarters of an hour. The plant which has been operated without incident for many years, uses acetone in the manufacture of pseudo-ionone, an intermediate for perfumery and pharmaceutical products.

Four employees suffered from burns as a result of the fire. Two men were detained in hospital—one has died from his injuries, while the other is comfortable and not on the danger list. The remaining two casualties were treated in hospital and allowed to return home.

The fire was rapidly brought under control by the Abrac works fire-fighting organisation and completely extinguished by the local fire brigade. The precise cause of the fire is currently being investigated by senior technical personnel of the company.

decision to go ahead with the issue irrespective of the result of the I.C.I. offer.

In that event I.C.I. would be entitled to receive their appropriate share of the Courtaulds loan stock.

I.C.I. would not extend the ordinary share offer beyond 8 March without also extending the alternative loan stock offer. The decision to extend or not will be taken as soon as the position at that date is known.

A letter containing this statement and I.C.I.'s comments on the recent Courtaulds proposals will be posted to Courtaulds' stockholders before the week-end.

Diakon solves TV tube problems

DIAKON, I.C.I.'s acrylic polymer, is now being used in a new 19 in. TV tube, for which important advantages are claimed. Bonding an implosion guard made from Diakon direct to the tube face is said to give better picture quality, simple mounting of the tube and freedom from troubles caused by dust deposits. Special Tensol cements have been developed by the Plastics Division's technical service and development department for bonding the guards to the tubes.

These cements had to satisfy exacting operational requirements, including high bond strength, retention of flexibility over a wide temperature range and immunity from degradation during service life.

This work has resulted from extensive experimental work undertaken jointly by the division and Mullard Ltd.

Honeywell's computer controller improves efficiency of stills

A COMPUTER controller has been introduced into the U.K. by Honeywell Controls as an aid to improving efficiency of fractionating columns and other distillation units. Known as FRAC (fractionator reflux analogue computer), it is used for determining and controlling internal reflux flow rate as ambient temperatures change.

It is now being manufactured in this country under licence from Phillips Petroleum of the U.S. Honeywell Controls state that external reflux flow is measured together with the temperature difference between the external reflux and the overhead products. The internal reflux flow rate is computed from this and is then regulated by adjustment of the external reflux flow rate.

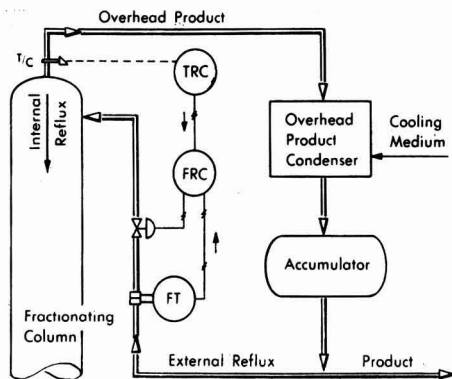
Advantages claimed for the system include very fast correction for variations in reflux temperature originating in condensing systems; there is no need of additional equipment other than normal column instrumentation. In addition, large surges of internal reflux are avoided and less reboiler heat is required. A re-

duction in off-specification product is claimed and the fractionator can operate closer to flooding point as a result of the precise control. Faster on-stream time is also claimed, while lower equipment and maintenance costs result from condenser temperature controls being eliminated.

Designed for panel-mounting or surface installation, the FRAC computer is in a standard strip chart recorder case. Standard electric and pneumatic components are embodied.

Two versions are available—one with a fixed range thermocouple-to-pressure transmitter, the other with an adjustable range thermocouple-to-pressure transmitter to provide maximum flexibility for all applications. A check can be made of all pneumatic signals with the aid of a 0-15 p.s.i. gauge and selector switch. The user can switch from FRAC control to conventional external reflux flow control at will.

An additional use of the FRAC device is as a B.Th.U. rate computer in heat exchanger, boiler and refrigeration systems.



Improved method of fractionator control using FRAC reflux analogue computer by Honeywell

Chemidus-Capper link to provide contracting service for plastics pipe installations

THE rapid growth of the use of plastics pipe in industry has led to an agreement between William H. Capper and Co. Ltd., and Chemidus Plastics Ltd., to register a joint company to be known as Capper Chemidus Ltd., at Forward Works, Woolston, near Warrington, Lancs.

The new company will provide a comprehensive service for the design, supply and erection of plastic pipework.

Chemidus Plastics will supply all basic materials and chemical design facilities, while advantage will be taken of H. Capper's wide experience of pipework

and plant erection in a service now employing approximately 1,000 personnel and operating through five divisions to serve any point in the U.K.

Mr. G. B. Stuart has been appointed general manager of Capper Chemidus; the new company have started trading on 1 March.

The agreement embraces all industrial and chemical pipework installations and customers will be able to negotiate with Capper Chemidus complete contracts previously split between a manufacturer of plastics pipework and an erection contractor.

New Shell PEG meets B.P. Codex Standard

A NEW polyethylene glycol has been added to the range of polymeric materials produced from ethylene oxide by the Shell Chemical Co. Ltd. Called Polyethylene Glycol 4000 P, it has been developed to meet the B.P.C. 1959 standard for hard macrogol—the Codex name for PEG 4000.

Many of its applications are, therefore, in cases where the B.P.C. standard is of prior importance. For example, it may be used with liquid macrogol, to produce macrogol ointment. B.P.C. (Shell's PEG 300 conforms to the Codex standard for liquid macrogol).

PEG 4000 P may also be used as a base constituent for suppositories, tablets and pills and as a mould lubricant in the production of tablets. However, its use is by no means restricted to the pharmaceutical and cosmetic industries—in fact, the 4000 P grade may be used to advantage in many applications where PEG 4000 has previously been employed.

This new product is supplied in a flake form in 45, 10 and 5 gall. casks with polythene liners.

H. R. Touchin sets up as consultant

HAVING resigned his practice as chief chemist of England, Hughes, Bell and Co. Ltd., Mr. H. R. Touchin, a Fellow of the Royal Institute of Chemistry, is now acting as a consultant on surface coatings and protection, resins, design of experiments and statistical analysis. His practice has been established at 180 Framingham Road, Brooklands, Sale, Ches. (Sale 7354).

Mr. Touchin offers an advisory service for users and contractors on the protection of constructional materials of all types against corrosion and chemical attack, including metal preparation, choice of coating systems and the drawing up of complete specifications for special and general painting needs.

Other facilities include examination of paint failures, a comprehensive analytical and advisory service.

Fisons deny rumours of take-over bids

FIONS stated on Wednesday that they had no knowledge of any events which could form the basis of recent rumours which might have affected the price of their shares in the past few days.

Take-over rumours about Fisons have caused shares to jump a further 3s 9d to 44s 6d, making a rise of 7s 3d on the week.

C.S. anniversary meetings

The 1962 anniversary meetings of the Chemical Society will be held at Sheffield on 2 to 5 August. The meetings will include symposia on 'The structure, oxidation, and biosynthesis of naturally occurring phenols', 'The transition state' and 'Reactivity and structure in inorganic chemistry'.

Sulphur in Far East and Australasia

Demand for sulphur increases as industrialisation is speeded up

THE next few years will see changes in the sulphur picture in Asia and some other areas where there is a rapidly increasing demand for sulphuric acid for fertilisers, rayon, steel and other commodities, according to a Canadian report. Production of sulphur in Canada has been gaining momentum. Production capacity is now approaching 1.5 million tons a year and should be well over the 2 million mark in the next two or three years. Consequently, Canadian producers are looking for export markets to take up their increasing output. It is to provide information on the various possible outlets that the Canadian Department of Trade and Commerce recently reported on the sulphur situation in the Far East, Australia and New Zealand.

Production. No sulphur is produced in Hong Kong, Thailand, Malaya and New Zealand, although natural gas reserves have been discovered recently in the Northern Island of New Zealand and domestic production of sulphur could follow. No sulphur is mined in Australia; domestic production is from recovered sources. The Philippines and Taiwan produce only small amounts, but Indonesia expect to be self-sufficient in sulphur by 1963, and perhaps have a surplus for export when a number of the new sulphur plants under construction under the Eight Year Development Plan come into production. India at present relies entirely upon imported sulphur, but will have a plant in production by 1964. Communist China produces considerable amounts of sulphur and are net exporters to world markets.

Present annual production of sulphur

Taiwan	6,000 tonnes
Philippines	4,500 tonnes
Indonesia	4,000 tons
China	500,000-600,000 tons
Australia	4,000 tons

Consumption. Consumption of sulphur in India can be expected to rise sharply if the Third Plan (1961-1966) targets for expanded production of fertilisers, steel, rayon and chemicals are to be met. As in other countries, sulphur is mainly used for the production of sulphuric acid. Output of sulphuric acid in India from some 40 plants was 350,000 tons in 1960 (capacity 475,000 tons). The Third Plan calls for a capacity of 1.75 million by 1965/66.

Sulphur in the Philippines is consumed mainly by the sulphuric acid plant which has an estimated annual requirement of 2,000 to 4,000 tons. Other nominal users of imported sulphur are tyre companies and match factories. It is estimated that about 200 tons of

sulphur are used by the tyre companies annually; the consumption of the match factories is negligible.

Hong Kong produces no sulphur of its own; it is imported both as crude and refined sulphur. Nearly all the raw sulphur imported goes to the three sulphuric acid plants currently in production. About 15% of the refined sulphur imported is re-exported.

Total annual consumption of sulphur in Australia is estimated at 400,000 tons. Annual output of sulphuric acid has reached approximately 1.2 million tons. The main users of sulphur in New Zealand are the fertiliser companies, whose current rate of consumption is 120,000 to 125,000 tons a year. With the new fertiliser works being built at Whangerei and the plan to build another new plant in North Auckland in about three years' time, the demand for sulphur in New Zealand will increase.

Consumption of sulphur (1960)

	tons
Philippines	2,000-4,000
Indonesia	15,000
Thailand	3,000-4,000
Australia	400,000
New Zealand	120,000-125,000
Hong Kong	1,250

Imports of sulphur (1960)

	tons
India	175,000
Taiwan	12,608
Philippines	1,844
Indonesia	8,582
Hong Kong	1,400
Thailand	3,267
Malaya, Singapore	1,100
Australia	233,754
New Zealand	58,759

Sulphuric acid consumption in India

	1960-61 est. consumption	1965-66 est. requirements
	'000 tons	
Fertilisers	210	1,090
Steel	26	30
Rayon and staple fibre	59	135
Sulphates and other salts	24	40
Petroleum refining	8	20
Miscellaneous	33	185
Total	360	1,500

Increased number of overseas visitors attend opening of O.C.C.A. technical exhibition

IN spite of snowy weather conditions, which disrupted travel, there was a good attendance at the opening of the 14th technical exhibition of the Oil and Colour Chemists' Association, which is being held in London (26 February-1 March) as we go to press. A noteworthy feature of this year's exhibition, judging by attendance during the first two days, is the increased number of visitors from overseas, including the U.S.

The official opening ceremony was performed by Mr. Denzil Freeth, M.P., Parliamentary Secretary for Science, in the absence of Lord Hailsham, Minister for Science, owing to indisposition. The opening followed the exhibition luncheon, held at the Criterion Restaurant, at which Mr. Denzil Freeth also deputised for Lord Hailsham as guest of honour. Another principal guest who was unavoidably absent, owing to travel difficulties, was Lord Fleck, president of the Society of Chemical Industry.

An address of welcome was given by the president of the O.C.C.A., Dr. H. A. Hampton, who outlined the activities of the Association in the field of technical education, and mentioned that the Association's journal, familiarly known as 'JOCCA', reached its 500th issue this month.

Responding for the guests, Mr. Denzil Freeth dwelt upon the importance of the fully qualified technical man in this latter half of the 20th century, and of adequate apprenticeship training facilities.

Other guests included Mr. A. K. Ames, chairman, British Colour Makers' Association; Mr. R. J. Hannay, president, Society of Dyers and Colourists; Dr. V. G. W. Harrison, director, Printing, Packaging and Allied Trades' Research Association; Mr. L. R. Hickson, president, Research Association of British Paint, Colour and Varnish Manufacturers; Mr. A. T. S. Rudram, chairman, London Section O.C.C.A.; Dr. L. Valentine, director, Paint Research Station; and Mr. H. H. Woolveridge, president, British Plastics Federation.

Fulmer 'Open day'

Fulmer Research Institute, Stoke Poges, Bucks, will hold an invitation-only 'Open day' on 7 June when a cross-section of work in progress will be exhibited. The occasion will mark the institute's fifteenth anniversary and completion of laboratory extensions.

Obituary

Mr. E. C. (Ted) Bamford of Howards of Ilford Ltd. (a member of the Laporte Industries Group) has died at the age of 55. In 1934 he was appointed as Howards' first representative for the North of England and Scotland for fine chemicals and held this position for more than 27 years.

Aikman's annual nitrogen report

CONTINUING RISE IN WORLD DEMAND FOR NITROGEN

WORLD production of nitrogen for fertiliser and industrial use in 1960-61 totalled an estimated 13,176,000 tonnes of pure nitrogen, 8.4% up on 1959/60. Consumption, at 12,920,000 tonnes was higher by 5.5%. These estimates of Aikman (London) Ltd. are made in their annual nitrogen report, which is published in *Nitrogen*, No. 15, one of the British Sulphur Corporation journals.

Aikman estimate that production will increase by a further 5.6% in the fertiliser year 1961/62, with consumption up by 6.8%. There can be little doubt, say Aikman, that consumption will continue its increase to a similar pattern for several years and that to meet that demand, production will be also stepped up.

There will be a change in the pattern of the major producing countries. New plants have been installed in most of the traditional importing countries and many more are scheduled for completion in the next year or so. New plants in Egypt, Spain and Pakistan, for instance, are rapidly increasing their production towards self-sufficiency; other countries will follow suit.

Aikman estimate consumption of industrial nitrogen as follows (the actual figures being included in the table):

INDUSTRIAL NITROGEN ('000 tonnes N)

	1960/61	1961/62
U.K.	160	175
France	97	103
Germany, E.	50	50
Germany, W.	236	240
Italy	70	76
Netherlands	15	20
Rest of Europe	160	180
U.S.	1,020	1,070
Canada	35	38
Japan	115	130
South Africa	45	45
Other	35	50
Total	2,038	2,177

What, ask Aikman, will happen to overcapacity in West Europe, which now approaches 1 million tonnes a year? Although there will be fewer importing countries, and some importers may become exporters, it is felt that countries like China, with vast scope for development, will still import as much as their foreign currency will allow; it will be many years or decades before national production could meet the needs of their growing population. In addition, falling prices of nitrogenous products might well check the plans for building new plants.

Stocks at the end of 1961 were fairly heavy with a considerable surplus of ammonium nitrates and urea. It was felt that orders from China, for 200,000 to 250,000 tonnes of nitrogen, would account

for 1 million tonnes of product. This material would probably be bought in West Europe. Since Japan has sold 50,000 tonnes of ammonium chloride to China, this could lead to the resumption of sales of ammonium sulphate.

Export prices have been far from strong with ammonium sulphate at a very weak \$28/ton f.o.b. in bulk and urea well below the \$70 mark f.o.b. in bags. Aikman believe that urea prices will fall towards \$60 in "the not too distant future". To clear some of their stocks, European producers would have to accept less for ammonium sulphate than the £11/ton f.o.b. quoted to China last year.

Aikman repeat their view that the present method of selling is out of date. They believe that more than ever there should either be a central selling organisation for all European producers or that a free market should be set up with daily quotations of f.o.b. prices without regard to destination. Without such an organisation, the present system of competitive selling through established agents in countries of destination could only lead to a 'Dutch auction' with continuous price cuts. A free market would establish more stable prices after a short period of some uncertainty. It would let in the speculative merchant, who could be a very useful person to stabilise prices.

Aikman add "We appreciate that producers would not wish to change their sales policies all at once, but this could be avoided at the outset by excluding certain major and specified markets from free quotations".

It is added that the Soviet Union recently sold 10,000 tonnes of ammonium sulphate to the Sudan at £15 c.i.f.

The following is an extract from tables compiled by Aikman:

SUMMARY OF WORLD NITROGEN PRODUCTION AND CONSUMPTION ('000 tonnes N)

	1959/60		1960/61		1961/62*	
	Prod.	Con.	Prod.	Con.	Prod.	Con.
West Europe... ..	4,603	3,732	4,941	3,849	5,122	4,028
France	664	584	765	620	830	660
Germany, W.	1,274	847	1,416	848	1,420	870
Italy	667	426	710	405	710	425
Netherlands	436	242	405	245	415	260
Spain	86	240	110	270	140	290
Norway	266	57	275	58	285	59
U.K.	551	573	615	630	630	645
East Europe	1,810	1,833	1,968	2,010	2,135	2,175
Germany, E.	380	310	410	340	410	350
Poland	270	260	290	270	310	280
U.S.S.R.	890	930	980	1,030	1,110	1,150
Middle East	56	202	85	210	94	225
Africa	63	155	80	170	90	191
North America	3,822	3,685	4,018	3,800	4,225	4,010
U.S.	3,500	3,600	3,650	3,710	3,820	3,910
Central America	35	208	57	236	79	252
South America	202	145	177	178	180	197
Asia	1,547	2,257	1,829	2,429	1,946	2,676
China	280	600	350	610	380	690
Japan	1,029	770	1,185	835	1,225	880
Australasia	22	32	21	38	24	46
World total	12,160	12,249	13,176	12,920	13,913	13,800

* Forecast

U.S. firm to produce stainless steel micronic cloth in N. Ireland

MICRONIC stainless steel wire cloth, used in high precision filtration and other applications, is to be produced in a new factory that will be built at Lurgan, Co. Armagh, Northern Ireland, by the Pall Corporation of Long Island, New York. The factory is expected to be in full production next year and will produce about £200,000 worth of cloth per year. Main outlets for this cloth are in aircraft, missiles and space craft but there are also chemical and other industrial processes where wire cloth of this fineness proves useful. Pall Corporation claim that they have improved the performance of filters to a point where

particles of 0.00004 in. diameter can be reliably filtered out of fluids at rates of hundreds of gallons per minute.

Pall Corporation claim to be the world's largest producer of porous stainless steel and the leading U.S. producer of precision filtration equipment made from porous metals and other corrosion resistant materials. Pall-Ulster Ltd.—their first overseas subsidiary—will operate the new Northern Ireland plant, where the micronic wire cloth will be woven by Ulster workers. Major portion of the new plant's initial output will be shipped to Pall's plant at Glen Cove, Long Island.

Overseas News

COURT GIVES VON KOHORN PRIORITY IN DU PONT LAWSUIT

A U.S. court ruling gives Von Kohorn International Corporation priority in examining and taking depositions of Du Pont in the litigation started by Du Pont and Ducilo, their Argentine subsidiary. Du Pont are suing Von Kohorn for alleged enticement of workers with a view to learning Du Pont trade secrets.

Von Kohorn are alleging that Du Pont have infringed the Anti-Trust laws and that they have brought the suit maliciously for the purposes of harassment and that the facts submitted by Du Pont supported Von Kohorn's case, rather than that of Du Pont.

Du Pont accused Von Kohorn of hiring away at least 15 employees of Du Pont or Ducilo at salary increase specifically to obtain their knowledge of Du Pont processes for making cellulose film and nylon. It is also alleged that Von Kohorn offered to build plants based on this secret information in other parts of the world, including Germany, Japan, Russia, Yugoslavia and Argentina.

Named as co-defendants were the Von Kohorn associates, E.F.E.M. Gesellschaft für die Einrichtung Industrieller Anlagen, Darmstadt. Having tried to attract by advertising Du Pont or Ducilo employees, Von Kohorn are alleged to have used them to obtain documents, engineering drawings and production manuals, covering Du Pont processes.

Du Pont named three former employees said to have been hired at increased salaries. They are said to have taken drawings of Du Pont's special machinery for Cellophane and nylon production.

Third refinery planned for Pakistan

A Rumanian trade delegation is reported to have offered financial participation in an 80,000 tons/year refinery that is to be set up in East Pakistan. Oil companies in Belgium, France, Italy and Japan have already shown an interest in the plans.

A refinery now under construction by Kellogg at Karachi, is due for completion in October this year. Capacity will be 1.5 million tons of crude oil a year, which is scheduled to be increased to 2 million tons. The only refinery operational in Pakistan is located near Rawalpindi.

Tunisian investment in chemical plants

Details of the new Tunisian Ten-Year Plan, target year for which is 1971, have this month been made known, among main industrial projects covered by the scheme are the erection of a nitrogenous fertiliser plant, a phosphate calcination unit (at Wetlacui), a refinery (at Bizerta), a phosphorus works and a cellulose plant. Investments to be made in the

various schemes are respectively, 20 million Tunisian dinars, 10 million dinars, 10 million dinars, 6 million dinars and 3 million dinars (0.42 dinars equal 1 U.S. dollar).

Esso's £6 million refinery for Jamaica

An agreement for the construction in Jamaica of a £6 million refinery for Esso has been signed in Kingston by Mr. Norman Manley, Prime Minister. Capacity will be at least 28,000 bbl./day. The refinery is due for completion by the end of 1963.

African Oxygen plan extra facilities to boost oxygen capacity to 5 million cu. ft. a month

AFRICAN Oxygen have planned an expansion programme to cover installation of extra facilities in the Transvaal to boost oxygen capacity to 5 million cu. ft./month and doubling capacity for argon, plus large new liquid oxygen storage facilities at Vanderbijlpark, Capetown and Durban, as well as a new warehouse and works to produce gas-cutting and welding equipment. These projects will involve spending £380,000 more than the £100,000 capital spending programme which started at the end of 1961.

Montecatini to utilise magnesite process in Italy

Montecatini are to build at Porto Empedocle, Sicily, a new plant for the production of refractory bricks made of magnesite. The company's own process, based on the utilisation of sea water, which will be employed, is claimed to ensure 99% pure magnesite.

Von Kohorn nylon plants for India

A \$3 million contract has been placed with Von Kohorn International Corporation, White Plains, N.Y., by Nanubhai Industries, Bombay, for the supply of equipment for the production of nylon-6 yarn and tyre cord. A 2 tons/day nylon plant supplied by Von Kohorn will be

Joint Hercules venture for toxaphene in Mexico

Hercules Powder Co. and Montrose Mexicana, S.A., have formed Lerma Industrial, S.A., for the manufacture of toxaphene insecticide for use in the cotton and crop growing areas of Mexico. The new firm will have offices and plant in Salamanca, Guanajuato. The new plant will be constructed adjacent to the existing facility of Montrose Mexicana, producers of DDT and other products. Construction will start in March, with completion scheduled for the end of the year.

£125 m. Texas-New York pipeline planned

A group of nine U.S. oil companies recently met in New York to consider proposals to build a pipeline to carry petroleum products from Texas to New York and New Jersey. The project has been estimated to cost around £125 million.

Australian tariff probe for synthetic rubber

Synthetic rubber, including latex, is to be the subject of an Australian Tariff Board enquiry to ascertain if assistance should be given to production by local manufacturers.

commissioned shortly by the Indian company, which has now had its plans approved to raise capacity to 5.8 tons/day, plus the production of nylon tyre cord.

Polypropylene plant for Monsanto Chemical

Monsanto Chemical Co., St. Louis, have disclosed plans to produce polypropylene and low-pressure polythene at a new 50 million lb./year plant at Texas City. Propylene and ethylene will come from the company's new olefins plant at Chocolate Bayou. Completion of the polyolefins venture is due early next year. Like Shell Chemical's plant at Carrington, Monsanto will also be able to produce either polypropylene or l.p. polythene on the same plant.

Du Pont's large rutile order for Australia

Du Pont have ordered £A5 million worth of rutile from two Australian companies. They are National Minerals Holdings and Coff's Harbour Rutile who will combine their mining leases to meet the order. The contract, which is for the supply of 150,000 tons of rutile over five years, is the largest ever obtained by Australian rutile producers. It is expected to expand production by more than 30%.

Overseas News

AUSTRIAN CRUDE OIL AND GAS OUTPUT SHOWS DECREASE IN 1961

WHILE East and West compete to supply Austria's needs, indigenous oil production in Austria has fallen further in 1961, for which first complete figures have now become available. The total of 2,152,152 tons of crude (2,252,440 in 1960) includes 1,884,618 tons from the combined Matzen-Auerstahl field (1,956,000 in 1960).

Gas obtained with crude shows a similar pattern, the 1961 total of 253,867,868 cu. m., comparing with 254,863,370 in 1960 with Matzen-Auerstahl providing 88.8% of the total (88.7%). A rise in the production of dry gas to 1,288.5 million cu. m. (1,201.7 million in 1960) is in the main due to the increased production from Zwerdorf, 1,150 million cu. m. (under 1,100 million in 1960), though good increases are registered elsewhere.

The investment programme for 1962 will reach 709 million Schilling, and about half of this will be to increase the refinery throughput at Schwechat and completion firstly of the cracker, parts for which have been arriving by water, followed by the gas-oil hydrofiner and propylene separator. In the autumn the adjoining polypropylene plant will go over to domestic feed; so far this Montecatini-Stickkraftstoff joint plant was fed with Italian propylene. Construction of another distillation tower and laboratory will also be started. The other half of the funds will be directed at keeping the falling production at about the same level as in 1961; 27 million Schilling will be devoted to gas production.

With the 'Friendship' pipeline reaching Bratislava, 15 miles from Schwechat, and E.N.I.'s Genoa-Ulm pipeline passing through Vorarlberg, where topping units may be built, there is also talk of an agreement between E.N.I., the major oil companies and the Austrian Government on the Trieste-Vienna pipeline.

U.C.C. cut prices of ethylene oxide derivatives

Prices of all grades of Ucar Polyox resins have been cut by Union Carbide Chemicals by 29%. Bulk price is now 60 cents/lb., a fall of 25 cents.

Italy opens TEL import quota for U.K. and U.S.

The Italian Ministry of Foreign Trade has opened a quota for the import from the U.K. and the U.S. of 1,440 quintals of tetraethyl lead and TEL compounds during 1962.

Nippon Petrochemical to increase ethylene capacity

Nippon Petrochemical have applied for approval to increase their ethylene capacity to 75,000 tonnes a year. Construction will begin as soon as approval is granted and is expected to be complete by March 1963. Nippon Petrochemical had previously applied for a revision of

their contract with the Stone and Webster Engineering, U.S., so that they could expand their ethylene capacity to 84,000 tonnes/year. They changed their plans, however, in view of the decision of Showa Denka, to whom Nippon were to have supplied ethylene, to build their acetaldehyde plant in the Tokuyama district.

New uranium oxide process from Mol

A new process developed at the nuclear research institute at Mol, Belgium, is reported to enable the production of uranium oxide crystals in the form of macro-crystals 10 mm. in diameter and weighing 2 to 3 grammes. The Belgian body for the development of peaceful uses of nuclear energy states that British and U.S. scientists have worked on this same problem without satisfactory results. Elimination of the need to compress and sinter powder uranium oxide gives rise to the view that much higher purities can now be obtained.

Merck involved in two more lawsuits

MERCK of U.S. and Kyowa Hakko Kogyo, Tokyo, are seeking an injunction plus damages for infringement of two Japanese patents on fermentation processes for the production of monosodium glutamate against Commercial Solvents. Kyowa have licensed the patents to Merck in the U.S. on an exclusive basis. Commercial Solvents who have denied the allegations state that their position is unchanged since last October when they announced that they would make MSG using a new microbiological process based on a bacterial organism discovered in Japan.

Cie. Chimique Merck Sharp and Dohme, Merck's French affiliates, are being sued in France by Prochim, a French company that holds the patents of Dr. R. S. Aries on amprolium coccidiostat for patent infringement. Merck, who last year filed suits against Dr. Aries, charging him with illegally gaining and selling their know-how on amprolium, state that they also hold a French patent on the compound.

Du Pont proposals on General Motors shares

A proposed final judgement has been filed by E. I. du Pont de Nemours and Co. with the U.S. District Court in Chicago calling for divestiture of 63

Polypropylene fibres plant on stream in Japan

Avisun Corporation of Philadelphia, who have been interested in polypropylene fibre for textile use since their inception, state that their research programme has made progress towards solving the dyeability problem. Commercial facilities have now been established in Japan in collaboration with Avisun's licensee, Shin Nippon Chisso Hiryo K.K. who are now producing monofilament.

As soon as their petition for a joint fibre manufacturing company has been approved by the Japanese government, Avisun will have a financial and technological stake in those facilities. This approval is expected shortly by Dr. Herschel H. Cudd, president, who adds that the company is supplying an increasing amount of fibre grade resin to fabricators in the U.S. and overseas. This position is likely to be "expanded substantially" in coming months.

Togo phosphate plant in production

The phosphate rock mine and 750,000 tons/year processing plant of Compagnie Togolaise des Mines du Benin have started full production. Exports are expected to total 600,000 tons/year, worth about \$6.7 million. The ore reserve will, it is stated, last for 75 years. When exported, Togolose phosphate contains 80% tricalcium phosphate.

The company is owned by six French companies (80%) and the local Government (20%). The investment is valued at about \$26 million.

million shares of General Motors over a three-year period. The proposed judgement stipulates that Christina Securities Co., a Du Pont holding company should divest themselves of any General Motors shares received from Du Pont as well as the 525,500 G.M. shares now held. Christina hold about 29% of Du Pont common stock.

Dutch Minister gives details of natural gas find

Details of the large natural gas deposit near Slodsteren, in Groningen Province, were given last week in the Dutch Parliament by Dr. Jan de Pous, Minister of Economic Affairs. Of the total capacity of over 195,000 million cu. yards, nearly 10,000 million can be made available each year to supply one quarter of Holland's energy needs for the next 20 years. A number of deposits have yet to be investigated; exploration continues south of Limburg where the Dutch State Mines have large chemical facilities.

Before discovery of the Groningen deposits, natural gas reserves in Holland had been estimated at about 10 million cu. yards. Esso and Shell are participating in N.A.M. (Netherlands Natural Gas Co.) for exploration work.

Chemicals in Sicily

Petrochemicals, fertilisers form major part of industrialisation

PETROCHEMICALS and fertilisers are the backbone of industrialisation which is taking place in Sicily. It is towards these sections of the industry that the attention of the major chemical companies and foreign investors has been directed.

Seven out of the nine large concerns which have been established in Sicily are based either on petrochemicals or on fertilisers: a potassium and compound fertiliser plant at Porto Empedocle (Societa Akgras, Montecatini Group—7,100 million lire); an ammonia plant at Priolo (Augusta Petrochimica, Montecatini Group—5,100 million lire); potassium salts mine and fertiliser plant at Calcibetta (Trinacria, Edison Group—7,600 million lire); potassium salt mine at Serradifalco and potassium sulphate plant at Campofranco (Montecatini Group—8,800 million lire); polythene plant at Ragusa (Bombrini-Parodi-Delfino Group—8,800 million lire); compound fertiliser, ethylene at Priolo (Sincat, Edison Group—68,000 million lire); and polythene and other ethylene derivatives at Priolo (Celene, affiliates of Edison Group and Union Carbide—nearly 135 million lire).

Production figures of Sicilian petrochemicals for 1961 are not available but Banco di Sicilia report some results for 1960.

The Montecatini plants at Licata, Porto Empedocle, Palermo and Priolo produced a total of 70,000 tonnes of sulphuric acid, 55,700 superphosphates, 35,000 phosphonitrogen fertiliser and 20,000 tonnes of ammonia.

Sincat's plants

Sincat's plants at Priolo-Melilli occupy an area of 4 million sq. m. of which 75% are occupied and the remaining 25% constitute a reserve space for future expansion. Although about 80,000 million lire have already been invested in them, an additional investment of 45,000 million lire is envisaged in the course of the coming five years. The yearly capacity of these plants totals: 500,000 tonnes of complex fertilisers; 200,000 tonnes of nitrogen fertilisers; 100,000 tonnes of potassium salts; 500,000 tonnes of other chemicals (sulphuric, phosphoric, nitric, and hydrochloric acids, ammonia, liquid chlorine, sodium hypochlorite, caustic soda and potassium, etc.).

During the second half of 1960, petrochemical plants added to this complex came on stream and produced, before the end of the year, about 150,000 tonnes of ethylene, propylene, etc. Celene's plant, also at Priolo, produced about 12,000 tonnes of polythene.

Owing to proximity to sources of some raw materials as well as local sources, Sicily is tending to become a large inter-

national production and distribution centre of chemical fertilisers. New large plants are being added to those that already in operation, including a plant built by Akragas (Montecatini) at Porto Empedocle which can turn out about 50,000 tonnes of fertilisers (over and above the total produced by the same company in an older plant); ANIC's plant at Gela, which, among other chemicals will produce 50,000 tonnes of urea and 150,000 tonnes of ammonia a year; a plant for the production of potassium chloride and sulphate will be operated by Trinacria. The capacity of this plant has not been announced yet, but it is bound to be considerable.

No less spectacular results are recorded for petrochemicals. The major part of the ethylene produced by Sincat in their

olefins plant at Priolo-Melilli, already mentioned, will go to Celene for the production of low density polythene. Celene have expanded their polythene plant, the capacity of which had exceeded 30,000 tonnes a year by the end of 1960. They have also added plant for the manufacture of ethylene oxide, ethylene glycol and other derivative used mainly in the production of solvents and paints.

The petrochemicals plant that A.B.C.D. is operating at Ragusa has a capacity of 12,000 tonnes a year of polythene, but it has been designed to enable the capacity to be stepped up to 26,000 tonnes when required.

By far the largest Sicilian petrochemical plant is being built by ANIC at Gela. Part of the complex will be on stream in 1962. The following schedule of annual output has been announced for the plant: fuel oil, 1,350,000 tonnes; gas oil, 550,000 tonnes; LPG 200,000 tonnes; ammonium sulphate, 165,000 tonnes; urea, 100,000 tonnes; aromatic hydrocarbons, 60,000 tonnes; ethylene 50,000 tonnes; polythene, 25,000 tonnes; ethylene oxide, 20,000 tonnes; ethylene glycol and ethanalamines, 18,000 tonnes; synthetic glycerine, 10,000 tonnes.

Sicilian sulphur producers set up consortium for marketing and production

NINETEEN Sicilian sulphur-mining companies have jointly formed a consortium which will be delegated the task of marketing those sulphur products which are not supervised by E.Z.I. (Italian Sulphur Board). Furthermore, this consortium is setting up, in co-operation with the member companies, an industrial enterprise which is to build and to operate three plants that will process sulphur.

These are the first steps in a plan to overcome the difficulties which have beset the Sicilian sulphur industry for some time. The plan has been submitted to Sicilian authorities and if they approve it, application for financing of it will be made to the European Investments Bank, which is reported to be favourably disposed towards a scheme of this kind.

Essential points of the plan are:

- cession of 120,000 tonnes of mineral with 25% sulphur content to Akragas Co.;
- utilisation of 504,000 tonnes of similar mineral for the production of 350,000 tonnes of sulphuric acid;
- construction of a sulphuric acid plant at Porto Empedocle with a capacity of 400 tonnes/day;
- construction of sulphuric acid plant at Catania, capacity 600 tonnes/day;
- construction of an ammonium sulphate plant at Catania with a capacity of 100-200 tonnes/day;
- cession of 80% of the sulphuric acid produced to Sicilian industries;
- utilisation of the remaining sulphuric acid for the production of other

chemicals and sales of the surplus of acid.

The plants contemplated in this scheme would cost as much as Lire 7,400 million but, apart from the fact that this is a smaller amount than was contemplated in previous schemes, the promoters feel confident that they will be able to keep their costs low enough to charge competitive prices for their acid and other chemicals.

Sicilian production during 1961 amounted to about 968,000 tonnes of sulphur ore (4% less than in 1960), 44,000 tonnes of molten sulphur (22% less) and about 17,000 tonnes of molten sulphur concentrates (30% less). The situation is much better as regards flotation concentrates which are more profitable and easier to market. In fact, during the first three quarters of 1961, 40,000 tonnes or 25% more than in 1960 were produced.

New addition to R.I.C. lecture series

Three new additions have been made to the Royal Institute of Chemistry lecture series: No. 4 'Ramsey, chemistry and the electrical industry' (R. C. Chirnside, F.R.I.C., President of the Society of Analytical Chemistry); No. 5, 'Tobacco smoke and lung cancer' (Henderson Memorial Lecture, by J. W. Cook, F.R.S.); and No. 6, 'Recent developments in the chemistry of free-radical addition reactions' (Meldola Medal Lecture, by J. I. G. Cadogan, F.R.I.C.).

Bookshelf

ALDERMASTON EXPERIENCE WITH INERT ATMOSPHERES

INERT ATMOSPHERES IN THE CHEMICAL, METALLURGICAL AND ATOMIC ENERGY INDUSTRIES. By *P. A. F. White and S. E. Smith*. Butterworths, London, 1962. Pp. viii + 235. 50s.

Although it comes last in the title the authors of this book are primarily concerned with the practice of the atomic energy industry in which they are employed. Necessarily they depend largely on experience gained at Aldermaston as there are very few published sources. Several of the chapters have only two or three references.

The inert atmospheres of the title are those composed of either helium or argon, though much of the information would be relevant for the use of nitrogen. The arrangement is logical. After an introduction and a chapter on general principles, four chapters describe the processes and equipment for the supply of the gases. The information is full and given with studied impartiality to the point at which it is sometimes difficult to assess the relative merits of particular methods. Two chapters cover the design of inert work spaces and of testing for leaks which is one of the hallmarks of several modern technologies. Chapter 9 covers the estimation of impurities and chapter 10 the economic aspects. Finally a short chapter covers future developments.

This book will be useful to the specialist in a field in which there is very little literature.

► Fungicides

FUNGICIDES IN AGRICULTURE AND HORTICULTURE, S.C.I. MONOGRAPH No. 15. Society of Chemical Industry, 1961. Pp. 145.

This monograph is a compilation of the papers and resultant discussions of a symposium organised by the Pesticides Group in March 1961 at the London School of Hygiene and Tropical Medicines, the first time in the U.K. chemists and plant pathologists discussed jointly the current and future place of fungicides in agriculture and horticulture. The symposium was organised in four sessions, the first being concerned with current usage, the second with the modes of action and factors affecting fungicide action, the third with new developments and structure-activity correlations, and the fourth with antifungal compounds in seedlings of *vicia faba*, and the fungicides dichloran and dodine. The importance of the topic is brought out by one contributor when he states that approximately 200 known fungi cause serious damage on crops of world importance.

The tests are largely descriptive and

are not entertaining reading to a non-specialist. The specialist should find the compilation useful but, though each chapter is succeeded by lists of references, only some are preceded by a synopsis and the volume lacks an index.

► Physical chemistry

CALCULATIONS IN PHYSICAL CHEMISTRY. By *B. W. V. Hawes and N. H. Davies*. The English Universities Press Ltd., London, 1962. Pp. xiv + 206. 21s.

This volume is the first of the new Chemical Science texts. The editor states in his foreword that the series "will deal with the requirements of the students from the stage when they are in the upper forms at school to the completion of their undergraduate courses". The problems in this book are more suitable for the latter group of students, and will be of very limited use in schools. The more important aspects of advanced physical chemistry are covered in 11 chapters, each chapter presenting about 45 problems. The problems are selected from examination papers and from the original literature. Notes are included as an aid to the solution of about half the problems in any given chapter. For the more difficult problems this is a very useful feature, but in some cases these notes consist merely of the repetition of well-known formulae readily available in any standard textbook. Students unfamiliar with these formulae would gain by referring to their textbooks.

The book is well produced, but one often wonders why books designed chiefly for student use are bound in hard covers, thus, becoming more expensive than they need be. Even so, it is still good value and is recommended to all students of advanced physical chemistry.

► G.L.C. and steroids

THE CHROMATOGRAPHY OF STEROIDS. By *I. E. Bush*. Pergamon Press Ltd., Oxford. Pp. 437. 80s.

The author intends to bring to the notice of workers on steroids who use chromatographic methods the general theory and background of partition chromatographic behaviour, and to the notice of students of the general theory of chromatographic behaviour, the usefulness of the steroids as a group for study. This is a large task involving a very extensive knowledge of literature published in many places, and the resultant text is considerable. Many specialists are likely to find points of detail with which they do not agree entirely—the reviewer was surprised at the particular

context in which he found reference to work in which he had been concerned himself—but none-the-less finds the book clearly written, well set out and to contain interesting and profitable reading. The author's second aim should be achieved and many who use chromatography in studies of substances other than steroids could benefit from reading the book.

► Plastics convention

PLASTICS PROGRESS 1961. Edited by *Philip Morgan*. Iliffe Books Ltd., London, 1961. Pp. 181. 65s.

This book consists of 11 papers given at the International Plastics Convention (Interplas 1961) held in London. The papers deal exclusively with the major types of thermoplastics, i.e. polyolefins, vinyls and polystyrenes and bring together the most recent technical and commercial developments of these materials. Also included in the book are the discussions which followed the papers. Interesting developments in the processing of thermoplastics were reported, including single-screw injection moulding, bottle blowing techniques, extrusion practice and film manufacture. All who attended the convention and others interested in the technology of plastics will certainly wish to have a copy of this book. For its size and quality of production, however, the book seems somewhat overpriced.

► Organic structures

DETERMINATION OF ORGANIC STRUCTURES BY PHYSICAL METHODS, VOL. 2. Edited by *F. C. Nachod and W. D. Phillips*. Academic Press Inc., New York. 1962. Pp. xiii + 771. 114s. 6d.

A first volume under this title was edited by Braude and Nachod and published in 1955. It is important to emphasise that the present volume consists of entirely new material. Of the topics in Vol. 1 only infra-red, Raman and ultra-violet spectra are taken up again in this volume.

The 11 chapters of the present volume are distributed as follows: Optical rotatory dispersion; Mass spectrometry; I.R. and Raman spectra; Electronic spectra and excited states; Far u. v.; N. m. r. (3 chapters); E. p. r. (2); Nuclear quadrupole spectroscopy. This is very rich and valuable fare, all the more remarkable in that much of this richness was at most suspected seven years ago.

Like its predecessor this volume will certainly be one of the most valuable in the literature of molecular structure studies. The chapters are by leading experts who have made mostly very successful efforts to expound and illustrate their themes to non-specialists. An aside can be added to a strong recommendation of the volume. It is pleasing to find the u.v. work of W. C. Price, started in 1934, receiving appropriate attention in an organic chemical context.

Market Reports**PRICE CUTS FOR TECHNICAL BORIC ACID**

LONDON Steady conditions prevail in most sections of the industrial chemicals market, but there has again been no decided new trend. The volume of new business on home account remains moderate and a fair movement against contracts has been reported.

Lower prices of the technical and pharmaceutical grades of boric acid have been announced by the makers. The reductions are £3 10s/ton for granular and £2 10s/ton for crystal and powder. Revised price bases came into operation on 21 February for dry white lead (up £2 5s/ton), red lead and litharge (both up £2 10s/ton).

Some expansion in the demand for fertilisers has been experienced and the next few weeks should see an increase in pressure for supplies. The coal tar products are steady and unchanged.

MANCHESTER With a relatively few exceptions, quotations for chemicals and allied products have maintained a steady front and few important changes have occurred. The textile trade is calling for fair contract deliveries of bleaching, dyeing and finishing chemicals and demand from other industrial outlets has been maintained at around recent levels and has covered a fairly wide range.

Most of the light and heavy tar pro-

ducts are going into consumption in reasonably good quantities.

SCOTLAND The level of trading was fairly steady during most of the past week, particularly in demands for the usual range of heavy chemicals, otherwise there is little change to report. Buying has mostly been against immediate requirements with quantities nominal. There has however been a little more activity in agricultural chemicals with deliveries now being called forward against earlier bookings. Prices generally have been steady with little alteration.

The export market showed some improvement, particularly in connection with demands from the Commonwealth countries.

P.A.T.R.A. tests gas permeability of films

THE Printing, Packaging and Allied Trades Research Association has set up a special department to deal with problems concerned with the gas permeability of packaging films.

The gas transmission rates of films to 'permanent' gases can be measured in P.A.T.R.A.'s permeability laboratory, where special equipment has been installed for testing.

DIARY DATES**MONDAY 5 MARCH**

Plas. Inst.—Leicester: Grand Hotel, 6.45 p.m. 'The effect of fabrication techniques on the properties of films & bottles made from polythene' by V. G. Kendall.

S.C.I.—London: 14, Belgrave Sq., S.W.1, 6.30 p.m. 'Industrial applications of some metal organic compounds' by J. H. Harwood.

TUESDAY 6 MARCH

I.Chem.E.—Birkenhead: Tech. Coll., 7.30 p.m. 'Drawing—the engineer's language' by C. A. Beaton.

Plas. Inst.—London: Wellcome Bld., Euston Rd., N.W.1, 6.30 p.m. 'High impact materials' by Dr. J. S. Skinner & C. A. Brighton.

Plas. Inst.—London: Wellcome Bld., Euston Rd., N.W.1, 6.30 p.m. 'Plastics in Shell building schemes' by W. F. Ratcliffe.

WEDNESDAY 7 MARCH

I.Chem.E.—Scunthorpe: John Leggett Grammar School, 7.30 p.m. 'Control & operation of pneumatic furnaces' by J. McNerny & H. Lewis.

Plas. Inst.—Holbury: Esso Fawley Recreation Club, 5.30 p.m. 'Plastics related to petroleum' by Dr. T. S. McRoberts.

R.I.C.—Cambridge: Tech. Research Station, Spiller's Ltd., Station Rd., 7.30 p.m. 'Analytical Research' by J. Haslam.

R.I.C.—London: Chelsea Coll. of Sc. & Tech., Manresa Rd., S.W.3, 6.30 p.m. 'Carotenoids' by Prof. B. C. L. Weedon.

S.A.C.—Manchester 2: Midland Hotel, Peter St., 4.30 p.m. A.g.m.

THURSDAY 8 MARCH

C.S.—Leeds: Chem. Lec. Theatre, Univ., 6.30 p.m. 'Some new natural phenolic compounds—structural & biosynthetic studies' by Dr. W. D. Ollis.

Plas. Inst.—Southampton: Chem. Dept., Univ., 7.30 p.m. 'Recent advances in reinforced plastics' by N. Eastwood.

R.I.C.—Chatham: Sun Hotel, 7 p.m. 'Properties & uses of plastics' by Dr. C. L. Child.

S.A.C.—Birmingham 3: Regent Hs., St. Philip's Place, 6.30 p.m. A.g.m.

FRIDAY 9 MARCH

I.Chem.E.—Manchester: Midland Hotel, 3.30 p.m. A.g.m. 7 p.m. Dinner & Dance.

**FORTHCOMING
ION ASSOCIATION**

C. W. Davies

Now in Production

In this book the experimental work is carried through to its next stages, giving accounts in turn of the various methods of studying ion association. The results, are reviewed and only then are the theoretical problems that appear discussed in detail.

All who are working experimentally within this sphere will find this volume an invaluable guide.

PROGRESS IN ORGANIC CHEMISTRY—5

Editors: J. W. Cook and W. Carruthers

180 pages

Price 50s.

The fifth volume in this series continues the policy of presenting critical reviews of some of the major topics of organic chemistry which are of present interest. The wide range of topics discussed include the homolytic oxidation processes, the hydroxylation of phenols defined as any process whereby a hydroxyl group replaces a hydrogen atom of the phenol system, the chemistry of dextran and selected topics of the chemistry of the higher terpenoids.

BUTTERWORTHS
4-5, Bell Yard, London, W.C.2.

● **Mr. W. L. R. Miles-Luscombe**, recently appointed deputy general manager of the Widnes Works of W. J. Bush and Co. Ltd., joined the company in 1954 as a chemical sales panel executive. He has been particularly concerned with product and application development and technical service.

● **Mr. Alec Colquhoun** has been appointed Scottish area manager, based on Glasgow, for Albright and Wilson (Mfg.) Ltd., following the retirement of **Mr. H. J. Collyer**. With nearly eight years with the company in Glasgow, Mr. Colquhoun has been concerned with selling a wide range of chemicals and has a deep knowledge of the needs of Scottish industry. His earlier experience of the chemical industry was both on the research and production sides. A. and W. (Mfg.) have also



A. Colquhoun



J. Abbey

appointed two further technical sales representatives, based at their Manchester office. **Mr. Geoffrey Ashton**, who is dealing with textiles and reinforced plastics, will be concerned with the Walker high temperature resistant resin development recently announced. **Mr. John Abbey** is concerned particularly with selling chemicals for use in water treatment, paint and detergent applications. In addition, the company is strengthening its metal finishing team. **Dr. Brian Chalkley** is now working in Leeds as a technical sales representative, concerned with the whole range of A. and W. metal finishing products and processes. **Mr. Maurice Sprague**, in Birmingham, is concerned with selling plant, both automatic and manual, for chemical polishing and electroplating.

● **Mr. J. V. Gregg**, of I.C.I. Nobel Division's research and development department, has joined the new chemical sales department at division headquarters, where he will head the intelligence and statistics section.

● The Moritz Chemical Engineering Co. Ltd., Thames Side, Kingston-on-Thames, have appointed **Mr. W. A. Wilcox** as technical sales engineer, to

PEOPLE in the news

promote sales of their complete chemical, fertiliser and grinding plants. Before joining the company, Mr. Wilcox was actively associated with contracts for some of the largest plants in this field, as well as for the limestone and quarry industry.

● **Mr. S. F. Burman**, a non-executive director of Imperial Chemical Industries Ltd., has joined the board of Imperial Metal Industries Ltd., the new company formed under the reorganisation of I.C.I. Group metal interests. Other directors are: **Dr. James Taylor**, chairman, **Mr. M. J. S. Clapham**, **Mr. St. J. Elstob** and **Mr. P. T. Menzies**. (See also CHEMICAL AGE, 13 January, p. 95.)

● **Mr. R. T. Hayes**, director and commercial manager of United Coke and Chemicals Co. Ltd., a subsidiary of the United Steel Companies Ltd., is leaving the company on 1 May to take up an appointment as director and general manager of the Loewy Engineering Co. He became commercial manager of United Coke and Chemicals in 1952 and a director in 1958. Mr. Hayes is president-elect of the Association of Tar Distillers; he is also chairman of the British Creosote Co. Ltd. and a vice-chairman of the British Sulphate of Ammonia Federation.

● **Mr. Paul H. Obergfell** has been appointed a director of Badger Ltd. in charge of sales. He was formerly directing the affairs of the Badger international organisation in Paris.

● **Dr. S. W. Saunders**, chairman of the I.C.I. Heavy Organic Chemicals Division, has been elected a fellow of University College, London.

● **Mr. Godfrey Winters**, manager of the heat exchange division of Wellington Tube Works Ltd., has been appointed to the board of Wellington Engineering Works Ltd., a company recently formed to carry on the heat exchange, fabrication and pipework activities of the group.

● **Mr. E. A. F. Bolton**, administration manager of W. J. Bush and Co. Ltd., has completed 40 years' service with the company. He was born on Bush premises in Moscow, where his father was a Bush manager.

● **Dr. W. L. J. de Nie**, president of Shorko Ltd., who, as stated last week, has been elected chairman of Shorko Packaging (U.K.) Ltd., joined Royal/Dutch Shell from Leydon University and in 1947 became industrial development manager of Shell in London. Later he was with Shell Chemical's marketing development department in New York and manager of Shell's Chemical Licensing Division, also in New York. He became president of Shorko Ltd., the joint Shell/National Distillers company, in 1960.



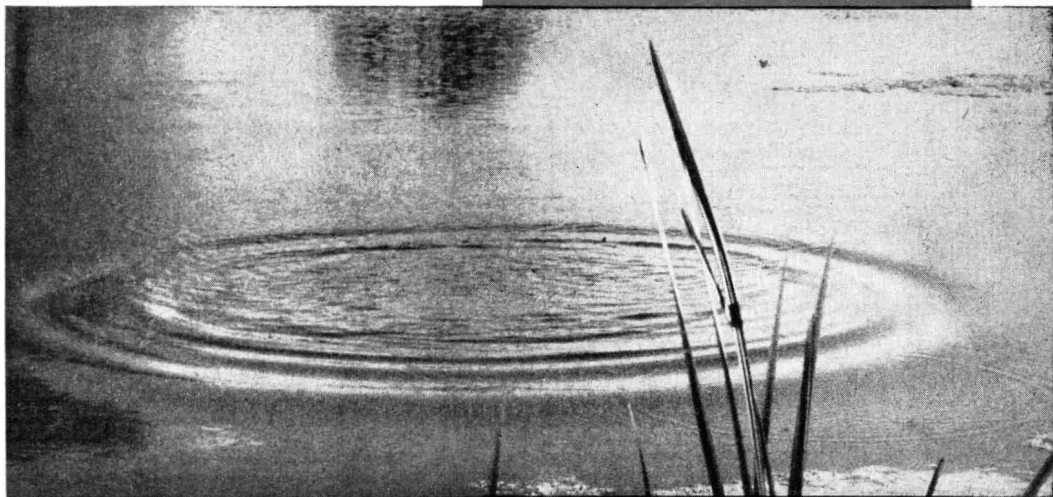
Dr. W. L. J. de Nie (left) and Mr. Lance A. Mitchell (right) chairman of the newly-formed L. A. Mitchell (Holdings) Ltd. (see C.A., 24 February, page 315)

● **Mr. S. P. Chambers** will attend the annual dinner of the Ardeer Chemical Club for the first time since his election as president. To be held at the Eglinton Arms Hotel, Ardrossan, on 9 March, there will be a number of distinguished guests. These include **Sir Edward Bullard, F.R.S.**, Professor of Geodesy and Geophysics, Cambridge; **Dr. D. W. Kent-Jones**, the well-known consulting chemist; **Professor J. Hawthorn**, head of the Food Science Department at the Glasgow Royal College; **Professor J. Monteath Robertson, F.R.S.**, representing the Society of Chemical Industry; **Professor R. A. Raphael**, for the Royal Institute of Chemistry; **Dr. A. I. Scott**, for the Chemical Society; and **Dr. James Taylor**, a vice-president of the club.

● **Dr. H. M. Kimberley**, manager-administration of Petrochemicals Ltd.'s Carrington Works, near Manchester—a fully owned subsidiary of Shell Chemical Co. Ltd.—becomes general manager on 1 March in succession to **Dr. J. A. Berriman**.

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Commercial News

Amal

Amal Ltd., an I.C.I. subsidiary, report a loss of £2,029 for 1961 compared with a profit of £19,357. No dividend is to be paid on ordinary (10%).

Anchor Chemical

Consolidated trading profit of Anchor Chemical Co. Ltd. for the year ended 30 November was £197,016 (£236,088). After tax of £96,736 (£114,837), net profit was £100,280 (£121,251). Final dividend of 11%, making 17% (same) is declared.

Borax (Holdings)

Group trading profits of Borax (Holdings) Ltd. for the year ended 30 September, after depreciation, depletion and amortisation totalling £2,295,674 (£2,041,461), were £4,066,116 (£4,117,840). The group pre-tax profit was £3,961,515 (£4,097,161). Tax took £1,295,829 (£1,229,925), leaving group net profit of £2,665,686 (£2,867,236). Net profit attributable to Borax (Holdings) was £1,822,582 (£2,024,123). Dividend on ordinary is 11½% (same). (See also p. 357.)

Groewood Securities

Mr. J. P. C. Danny, chairman and managing director of Groewood Securities Ltd., stated at the annual meeting this week that the Common Market would benefit the company's chemical business. It was expected that chemical profits might be lower during the current year.

Steeley Company

Group profit of the Steeley Company Ltd. for 1961, after tax of £1,438,301 (£1,636,773) and all other charges was £1,375,323 (£1,498,881). Profit attributable to the holding company was £1,345,104 (£1,472,195). A final dividend of 11% is announced, making 16% (same). The fall in profits occurred wholly in the second half of the year and was due to a cut of 17% in U.K. steel production.

I.C.I.

Although the volume of home and overseas group sales of I.C.I. was up in 1961, lower prices put a value of £551 million on the total, or 1.2% down on the 1960 figure of £558 million. Volume of U.K. sales was slightly higher, but by value they were down by about 2½%. Value, f.o.b., of exports from the U.K. was £97.5 million (£96.6 million in 1960), reflecting a substantial rise in volume, partially offset by further price cuts.

Group income before tax was £61.8 million (£88 million), down by 30%, after depreciation of £40.5 million (37.3 million) and profit-sharing scheme of £8.7 million (£8.6 million). After tax of £27.7 million (£40.4 million), group income was £34.1 million (£47.6 million), a fall of 28%. Group income after tax applicable to I.C.I. was £32.4 million (£45.2 million),

- Anchor pay same on lower profit
- Small profit fall for Borax (Holdings) Group
- I.C.I. results show big drop in profits
- Unilever Group net profit down £1 m.

and after undistributed income of subsidiaries applicable to I.C.I. of £3.6 million (£5.5 million), I.C.I.'s income was £28.8 million (£39.7 million), or down by 27%. £4.5 million (£4 million) is allocated to capital reserve and £800,000 (£13.4 million) is allocated to revenue reserve.

A final dividend of 1s 6d is recommended on ordinary, making 2s 9d (same). The report and accounts will be issued on 10 April.

Unilever

Combined turnover of the Unilever Group in 1961 was £1,890 million (£1,847 million), of which sales to third parties were £1,444 million (£1,387 million). Combined turnover for the second half of 1961 was £943 million (£939 million a year earlier). Pre-tax profit of Unilever Ltd. and N.V. was £103.1 million (£106.1 million) and £51.2 million for the half year (£50.3 million). Combined net profit was £53.1 million (£52 million).

Unilever Ltd.'s pre-tax profit was £51.7 million (£57.9 million) and their net profit for the year was £24.5 million (£29.2 million). Unilever N.V. had pre-tax profits of £51.4 million (£48.2 million) and net profits of £28.6 million (£22.8 million).

Unilever Ltd. are paying a final of 15.32%, making 24.79% (24.54%); Unilever N.V. final is 13%, making 21% (same).

l'Air Liquide

Increase of capital from NF.81.25 million to NF.82.9 million has now been approved by stockholders of l'Air Liquide. The 46,961 new shares of NF.35 each will be used to increase the company's stake in the chemical and fertiliser industry, particularly in carbochemicals and petrochemicals.

Commercial Solvents

Commercial Solvents Corporations of the U.S., have purchased a controlling interest in Istituto Chemioterapico Italiano of Milan, who manufacture pharmaceuticals.

Carbone Lorraine

Turnovers last year of some French chemical companies are recorded below:
Carbone Lorraine: NF.91.30 million (NF.82.12 million), an increase of 11% over 1960.

Keller et Leleux: NF.19.92 million (NF.22.56 million).

Laboratoires Robert et Carrière: NF.44.91 million (NF.37.12 million), a rise of 21% on 1960.

Rousselot: NF.74.42 million (NF.66.54 million).

Produits Chimiques et de Synthèse: NF.113.81 million, an increase of 3.41% on 1960.

Universelle d'Acétylène et d'Electrometallurgie: NF.17.09 million (NF.19.21 million) for second half of year.

Degussa

Deutsche Gold-und Silber Scheide-Anstalt are to pay a dividend of 17% (same) for the year ended 30 September.

W. R. Grace

Directors of W. R. Grace and Co., New York, have declared a quarterly dividend of \$40/share on common stock.

La Grande Paroisse

Following the recent share exchange between Saint-Gobain and l'Air Liquide, l'Air Liquide are now the largest shareholders in Soc. Chimique de la Grande Paroisse with 56% of the total, while Saint-Gobain have become one of the largest shareholders of l'Air Liquide. La Grande Paroisse produce anhydrous ammonia, ammonium hydrochloride, calcium nitrate, ammonitrates, sodium carbonate and alkalis.

Plants are at Waziers and Frais-Marais near the northern French coalfields, while a new plant is being completed at Montoir-de-Bretagne, Loire Atlantique, which will be supplied by feedstock from the refinery of Antar Pétroles de l'Atlantique and from Lacq. The company also acts as plant contractors for fertiliser works.

Plastichimie

Plastichimie, owned 51% by Péchiney and 49% by Dow Chemie AG and who produce Dow Styron polystyrene at Péchiney's Ribécourt works, are to raise their capital from NF.15 million to NF.25 million. They will acquire Péchiney installations in the Oise area; of the new capital Péchiney will take 51,000 shares of NF.100 each, the other 49,000 shares going to Dow in consideration of their technical co-operation and licences.

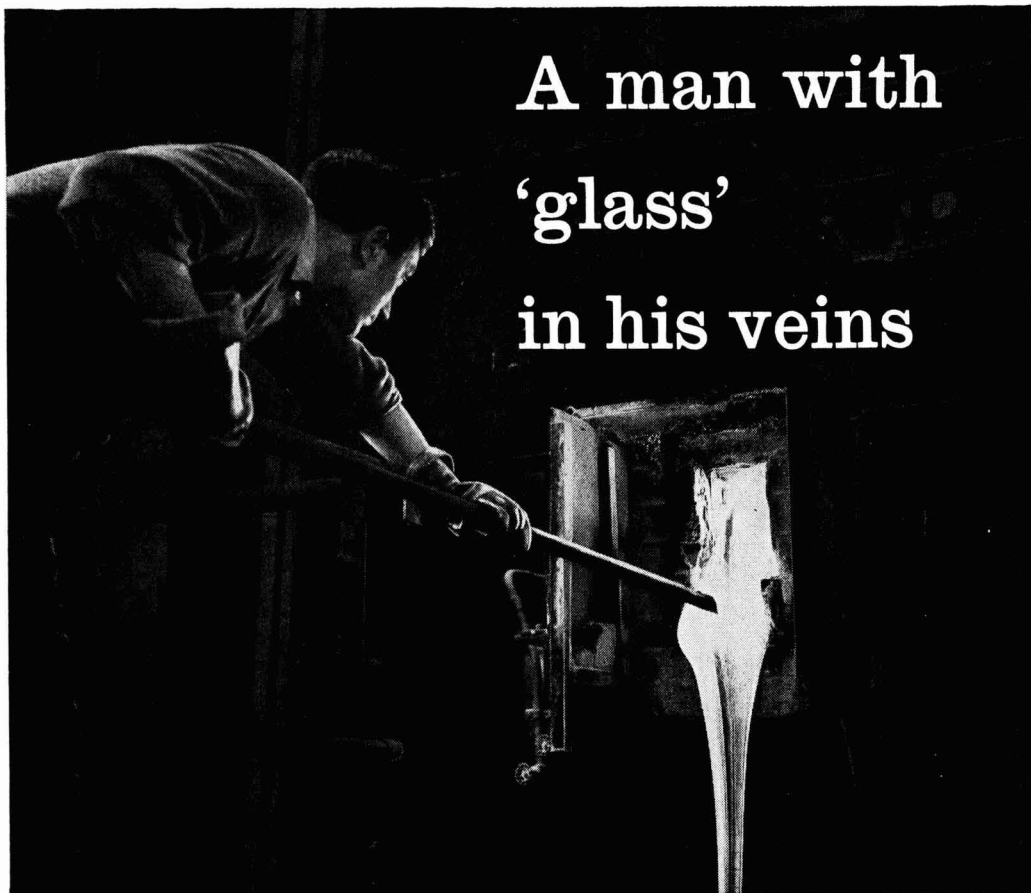
Ugine-Caffaro

Soc. Italiana Elettrica e Elettrochimica del Caffaro and Ugine of Paris have set up jointly in Milan a new company, Soc. Elettrochimica Ugine Caffaro S.p.A., to produce and market chemical and electrochemical products.

INCREASE IN CAPITAL

ABBEY CHEMICALS LTD., 8 Baker Street, London W.1. Increased by £100,000 beyond the registered capital of £100,000.

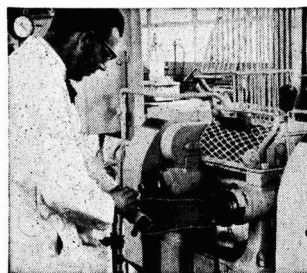
PARAMATTI, FABBRICA VERNICI COLORI E PENNELLI, Turin. Being increased from Lire 330 million to Lire 550 million.



A man with 'glass' in his veins

Alfred Walkett is one of several men in charge of the glass furnaces at Crosfields . . . furnaces that, every week, working day and night, fuse together over a thousand tons of sand and soda ash into a high-grade glass. Alfred's skill lies in keeping the quality of this glass consistent—for this is the basic material from which specialists like Arthur Lennox (right) help to evolve new fillers for rubbers, binding agents for TV tube coatings, catalysts for Britain's petrol. . . .

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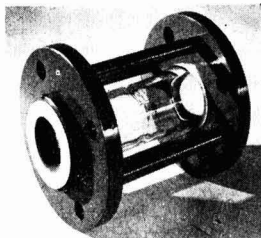
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Equipment news and trends

A BOROSILICATE glass tube mounted in a rigid mild steel frame, using p.t.f.e. inserts which control the axial pressure needed to make a fluid-tight seal, is the essential feature of a **visual flow indicator**, called the SSE Sightglass, which is claimed to be useful for 99% of all known liquids.

The complete indicator, which is supplied in standard sizes between 1 in. and 6 in., is bolted through the flanged ends into the line, forming a transparent



section offering all-round visibility. Depending on size, the indicator can be used in pipelines operating at up to 250 p.s.i. and 250°C. The maximum shock temperature change likely to be experienced should be limited to 130°C.

Where a more positive indication of flow is required, a patented Seeweed indicator can be fitted to the inlet, without decreasing the number of liquids which can be handled. It consists of a p.t.f.e. disc cut into a spiral which extends and flutters as the rate of flow increases.

Sir W. H. Bailey and Co. Ltd., Albion Works, Patricroft, Manchester.

The Swiss-manufactured Rüeger range of thermometrical equipment—mainly bimetal type, direct reading **thermometers**—is now available in the U.K. Vibration- and dust-proof stainless steel connections are available as standard on many of the instruments. The distributors also offer flowmeters, pressure gauges and other types of thermometry equipment.

James Hugh (Distributors) Ltd., 7 Melrose Avenue, London N.W.2.

A range of Variac continuously adjustable **auto-transformers** is now offered for use in the chemical and petroleum industries and generally for use in locations where inflammable atmospheres

may be met. The unit, which meets the requirements of B.S.S. 299:1946 ('Flame-proof enclosure of electrical apparatus') comprises a Variac contained in a Simplex general purpose flameproof enclosure of grey iron and supplied complete with terminal box and readily drilled with a conduit entry.

Claude Lyons Ltd., Valley Works, Ware Road, Hoddesdon, Herts.

* * *

New range of **drum lining lacquers** known as Sterilkote come in three different types, based on a straight phenolic resin, on a phenolic modified epoxy resin, and on plastic resins as Organosols or Plastisols, respectively. The linings may be applied by cold spray, dipping or flow coating. Certain of the epoxy-phenolic types may also be applied by roller coating, and when coated on flat sheets and stoved, the metal may be prefabricated, formed or deeply drawn, without cracking the lining. Leaflets giving data on the type of lining required as proof against specific chemicals may be obtained from

Industrial Finishes Division, Jensen and Nicholson Ltd., Carpenter's Road, Stratford, London E.15.

* * *

New **electronic recorder instruments** include a 36-range recorder, a multi-point temperature-measurement recorder for use with different metal thermocouples and a sinter-strand temperature recorder. A new thermocouple for stove-dome temperature measurement has also been introduced for use with the recorders of this range, while a further introduction is a series of furnace-pressure controllers, providing additional circular-chart recording and crescent-scale indication.

George Kent Ltd., Luton, Beds.

* * *

A new **flow indicator** for opaque liquids has proved effective with a hot oil so black that it rendered the vane of a standard flow indicator invisible despite the fact that the vane was only a few thousandths of an inch off the glass. The new flow indicator is also useful in cooling water systems where algae or other impurities have a tendency to cloud glasses. A special vane has spring-loaded p.t.f.e. plungers attached to its tip so that the plungers bear lightly on the glasses with a wiping action, causing a white disc, moving up and down the scale according to the rate of flow, to be clearly visible.

Liquid Systems Ltd., Redhill, Surrey.

* * *

Claimed to be the first commercial instrument for the direct measurement of sodium ion concentration, the **pNa meter** owes its development to the production of two new types of glass electrode which are sensitive only to sodium ions. Hitherto, a weak response to sodium ions exhibited by pH sensitive

glass electrodes has only been a tiresome interference in the accurate determination of caustic alkalinity. Now, this characteristic has been turned to good effect by accentuating the sodium responsiveness and at the same time suppressing the hydrogen sensitivity to a very low level.

A wide range of application is forecast for these electrodes. One glass has been developed for industrial and general laboratory applications; the other for precise laboratory measurements on relatively concentrated sodium solutions.

Electronic Instruments Ltd., Lower Mortlake Road, Richmond, Surrey.

* * *

Light weight, easy transportation of the components and high resistance to chemicals are features of **glass fibre tanks** assembled from standard sized panels, giving capacities upwards of 400 gall. Hermetically sealed heavy duty covers are also provided.

BTR Industries Ltd., Herga House, Vincent Square, London S.W.1.

* * *

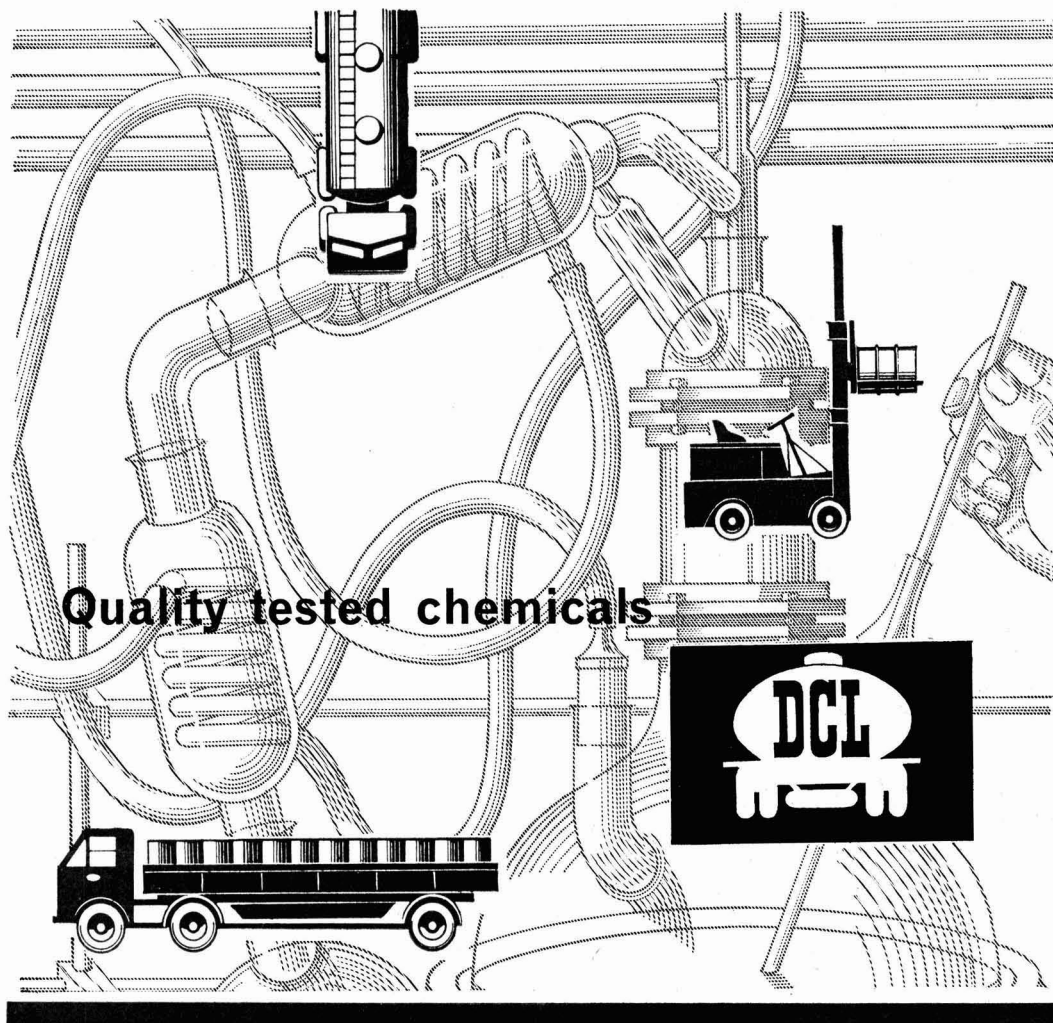
New version of the Premier 5 in. **paste mill**, model 5500 achieves a much cleaner design now that totally enclosed motors can be fitted as standard. This obviates the possibility of water splashing into the floor-mounted motors as in previous models. The floor height of the spillway has also been slightly increased to allow



the unit to be handled more easily and larger vessels can be used under the outlet. Adjustment handles have also been modified to allow for the fitting of a force feed unit when handling heavy pastes which do not flow under gravity.

The flat stone surfaces have now been modified in shape allowing the fitting of a more efficient impeller to keep material flowing to the working surfaces. These modifications to the working surfaces permit finer dispersions than with the older type conical surfaces.

Premier Colloid Mills Ltd., Hershman Trading Estate, Walton-on-Thames, Surrey.



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Bisol Sales Office, Devonshire House, Piccadilly, London, W.1

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TRADE NOTES

Stainless steel valves

Brooks and Walker Ltd., 47 Great Eastern Street, London E.C.2, have recently added to their existing valve stock a comprehensive range of stainless steel and alloy valves manufactured by Langley Alloys Ltd., Slough.

Hooker agents appointed

Kingsley and Keith (Chemicals) Ltd., Rex House, 38 King William Street, London E.C.4, have been appointed exclusive selling agents in the U.K. by the Hooker Chemical Corporation. They now handle the complete Hooker range, except for HET acid and Durez resin.

Products marketed in this country include: benzo-trifluorides; benzoyl-chloride; hexachloro-cyclopentadiene; hexachloro-butadiene; organo-phosphates; fluorolubes; lauryl mercaptan; tetrachloro phthalic anhydride; sodium sulphhydrate; and sodium tetra sulphide.

New Laporte Publications

Product publications newly issued by the Laporte Industries Group include a completely new 20-page version of the booklet 'Titanium oxide pigments' for Laporte Titanium Ltd. A German version of this booklet together with a German edition of the titanium pigments grades chart are also being released while the booklet 'Serving Plastics' has also been translated into German. 'High Grade

Fluorspar' is another new booklet, for Glebe Mines Ltd., while further publications include three for Howards of Ilford Ltd., on sorbital in cosmetics, Howflex C.P. and plasticisers in cellulose transparent wrapping film; and two summaries for Peter Spence and Sons Ltd. on organic chemicals and catalysts.

Copies of all these publications may be obtained from the individual company concerned or from the Laporte Group Publicity Department, New Bond Street House, 1-5 New Bond Street, London W.1.

Change of name

Nu-Swift Ltd., the fire-fighting equipment manufacturers of Elland, Yorks, have changed their name to Nu-Swift International Ltd.

P.t.f.e. for mechanical seals

Introduction of a new grade of p.t.f.e. with all the corrosion- and temperature-resisting properties of the standard grade, but resilient enough to be used for the stationary and rotary seal ring packings in their standard ranges of unbalanced and balanced O-ring fitted mechanical seals, has been announced by Flexibox Ltd., Nash Road, Trafford Park, Manchester 17. Hitherto, Flexibox mechanical seals of this description have been available only with synthetic rubber, silicone rubber or Viton packings.

Pyrethrum from Berk

Two forms of pyrethrum are now being offered by F. W. Berk and Co. Ltd., in packs designed for the commercial grower. Berk's African Pyrethrum is a liquid concentrate containing 4% weight/volume of pyrethrins and 16% weight/volume of piperonyl butoxide as a synergist to increase the efficiency of the pyrethrins. This concentrate mixes readily with water, and sprays easily. The other form, Berk's African Pyrethrum Dust, contains 0.2% pyrethrins and 1% piperonyl butoxide, and is stated to be comparable in price with 5% DDT dust, derris dust, etc.

Change of address

With effect from 2 March, Ellis and Everard Ltd. and Joseph Ellis and Sons Ltd. moved their head office to 140 New Walk, Leicester. Telephone number remains at Leicester 21785. The new address will also be the registered office of the two companies together with John and Joseph Ellis Ltd., the Ellis Chemical Co. Ltd. and Cravenhurst Properties Ltd.

Bright nickel plating

I.C.I. Dyestuffs Division now has available 1:3:6-trisulphonate which is essentially the trisodium salt of 1:3:6-naphthalene trisulphonic acid, sometimes used in bright-nickel plating baths. 1:3:6-trisulphonate is an improved offer for this purpose in place of Azoguard 35% solution, having the advantages of higher purity and quality control. Samples are available to potential users.

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Barron 'U' Sifter Mixer 96 in. by 33 in. by 33 in. with 10 H.P. A.C. Motor.

Gardner 'U' Sifter-Mixers 66 in. by 24 in. by 24 in. with 5 H.P. A.C. Motors. Four available, of modern streamlined design.

Horizontal 'U' Trough Mixers 48 in. by 18 in. by 22 in. Three—Tilting type, Paddle Blades. Glanded.

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Specifications filed in connection with the acceptances in the following list will be open to public inspection on the dates shown. Opposition to the grant of a patent on any of the applications listed may be lodged by filing patents form 12 at any time within the prescribed period.

AMENDED SPECIFICATIONS

Oxygen containing organic compounds from carbon monoxide, hydrogen and olefins. Anglo-Iranian Oil Co. Ltd., and ors. 702 191
Ammonium pyrrolidone carboxylate. Du Pont de Nemours & Co., E. I. 816 596

ACCEPTANCES

Open to public inspection 4 April

Antioxidants. Pearson Ltd., William. 893 162
Polymeric compositions. B.X. Plastics Ltd. 893 084
Lactones and their use as flavouring agents. Unilever Ltd. 893 321
Pyrene derivatives. Unilever Ltd. 893 326
Polymerisation of olefin oxides. General Tire & Rubber Co. 893 274
Substituted amines. Philips' Gloeilampenfabrieken N.V. 893 088
Diethylaminoethyl ester of dicyclopentyl acetic acid and its quaternary ammonium salts. Siegfried Ltd. 893 163
Method of nitrating cellulose. Francais Etat. 893 276
Process for the continuous production of aluminium nitride. Pechiney Compagnie de Produits Chimiques et Electrometallurgiques. 893 164
Manufacture of explosive and propellant compositions. Poudreries Reunies de Belgique S.A. 893 277
Steroids and the manufacture thereof. Upjohn Co. 893 141, 893 142
Process for making expansible polymers. Pechiney Compagnie de Produits Chimiques et Electrometallurgiques. 893 048
Phthalocyanine pigments which are resistant to flocculation, and process for their manufacture. Ciba Ltd. 893 165
Disazo-dyestuffs insoluble in water and process for their manufacture. Farbwerke Hoechst AG. 893 166
Furfuryl alcohol resins. Spies, Hecker & Co. 893 188
Stabilisation of hydrogen peroxide. Laporte Chemicals Ltd. 893 069
Process for the production of a polyolefin. Ruhrchemie AG. 893 336
Pyridazone amide derivatives. Lepetit S.p.A. 893 278
Nitrated 1,3,5-triazine derivatives and a process

for their production. Deutsche Gold- und Silber-Scheideanstalt, Vorm. Roessler. 893 279
Process for the manufacture of finely divided metal carbonates. Still, K. F. (trading as Still, C. (firm of)). 893 168
Process for the production of mono- and di-hydric alcohols. Ruhrchemie AG. 893 281
Process for the production of diketones. Unilever Ltd. [Divided out of 893 326.] 893 327
Steroids and the manufacture thereof. Upjohn Co. 893 143
Detergent compositions. Löw-Beer, P. (trading as Loba Chemie Dr., P. Lö-Beer & Co.). 893 129
Thiophosphoric acid esters and a process for their manufacture. Farbenfabriken Bayer AG. 893 339
Preparation of 17-alpha-haloprogesterones and related products. Canadian Patents & Developments Ltd. 893 071
Production of wear-resistant surface layers. Associated Electrical Industries Ltd. 893 231
Modified cellulose. Albright & Wilson Ltd. 893 283
Benzophenone sulphonamides and process for producing same. Geigy AG, J. R. 893 072
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Elastic yarns of vulcanised sulphochlorinated propylene ethylene copolymers. Montecatini. 893 073
Production of steroid compounds. Merck & Co. Inc. 893 209
Titanium-base alloys. Imperial Chemical Industries Ltd. 893 210
Manufacture of phosphorus oxychloride. FMC Corporation. 893 096
Steroids and the manufacture thereof. Upjohn Co. 893 144
Process for the production of piperazino-alkyl-4-azaphenothiazine. Deutsche Gold- und Scheideanstalt, Vorm. Roessler. 893 284
Phosphorus nitrilo compounds. Imperial Chemical Industries Ltd. 893 285
Methods of extracting metals by anion exchange process. United Kingdom Atomic Energy Authority. 893 286
Pyrimido pyrimidines and process of making same. Ciba Ltd. 893 235
Hydroxy-ketones and process for their manufacture. Ciba Ltd. 893 236
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Manufacture of cellular polyurethanes. Imperial Chemical Industries Ltd. 893 240
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5-poly-substituted phenoxy-methyl-2-oxazolones. Robins Co., Inc., A. H. 893 252
Process for the manufacture of phosphoric acid esters and novel phosphoric acid esters. Roche Products Ltd. 893 172
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Preparation of unsaturated carboxylic acids by vapour phase oxidation of 1-alkenes. Du Pont de Nemours & Co., E. I. 893 077
Organopolysiloxanes. General Electric Co. 892 985
Separating conjugated aliphatic dienes from mono-olefinic compounds. Purdue Research Foundation. 893 270
Process for racemisation of optically active glutamic acid. Ajinomoto Co. Inc. 893 272
Steroid compounds and therapeutic compositions containing steroid compounds. Francesco Vis-mara S.p.A. and Ercoli, A. 893 315
Polyurethane plastics. Farbenfabriken Bayer AG. 893 179
Stabilisation of chlorinated hydrocarbons. Hooker Chemical Corporation. 893 216
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Polymerisation of vinylidene monomers. General Aniline & Film Corporation. 893 063
Carbonyl compounds containing iron and cobalt and process for the production thereof. Montecatini. 893 064
Photopolymerisation of monomers containing the CH₂ = C< grouping. 893 304
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Process for producing high molecular weight linear polymers having regular structure. Montecatini. 893 308
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Polymerised vinylaromatic moulding compositions. Shell Internationale Research Maatschappij N.V. 893 210
Cyclododecadienols and their esters. Pouleuc. 893 068
Lactonols. Unilever Ltd. [Divided out of 893 321.] 893 322
Polymerisation of olefin oxides. General Tire & Rubber Co. [Divided out of 893 274.] 893 275

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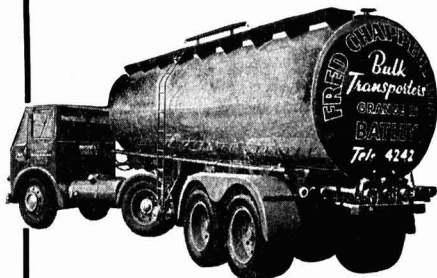
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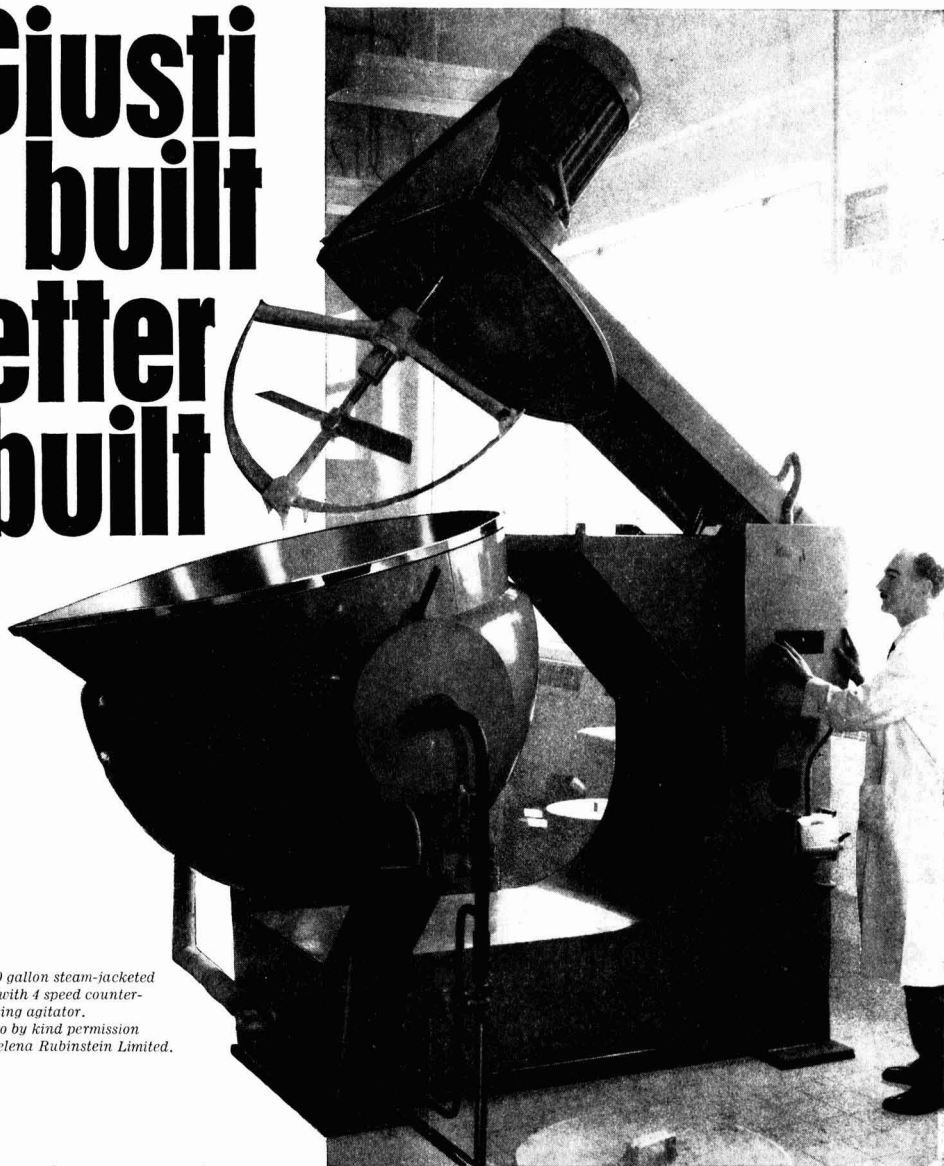
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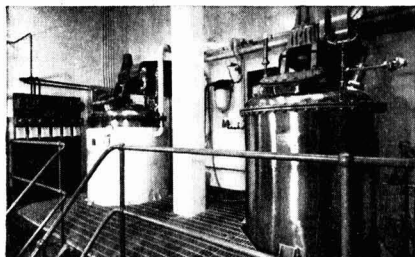
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